Supreme Court, U.S.
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No. 93-719

In the Supreme Court of the United States

OCTOBER TERM, 1993

FIGGIE INTERNATIONAL, INC., PETITIONER

v.

FEDERAL TRADE COMMISSION

ON PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

BRIEF FOR THE RESPONDENT IN OPPOSITION

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QUESTIONS PRESENTED

1. Whether, based on the record evidence, a reasonable person would have known that petitioner's marketing practices were "dishonest or fraudulent" for purposes of Section 19 of the Federal Trade Commission Act, 15 U.S.C. 57b.

2. Whether, for the purposes of affording consumers redress, it is appropriate to presume that, when a party makes material, widely disseminated misrepresentations and consumers purchased the party's product, consumers relied on and were injured by the party's misrepresentations.

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OPINIONS BELOW

The opinion of the court of appeals, Pet. App. A1-A30, is reported at 994 F.2d 595. The district court's findings of fact and conclusions of law, Pet. App. A41-A48, its order granting summary judgment as to liability, Pet. App. A49, its findings of fact and conclusions of law on remedy, Pet. App. A51-A53, and its order regarding summary judgment, Pet. App. A50, are unreported.

JURISDICTION

The opinion of the court of appeals was entered on May 7, 1993. A petition for rehearing was denied on August 6, 1993. Pet. App. A214. The petition

for a writ of certiorari was filed on November 4, 1993. The jurisdiction of this Court is invoked under 28 U.S.C. 1254(1).

STATEMENT

Petitioner seeks review of a decision of the court of appeals affirming a district court judgment awarding consumer redress under Section 19(a)(2) of the Federal Trade Commission Act (FTC Act), 15 U.S.C. 57b(a)(2), to the victims of petitioner's deceptive practices. Section 19 contemplates a two-step procedure: First, if the Federal Trade Commission (Commission) charges a party with unfair or deceptive practices, those charges are adjudicated in an administrative proceeding and thereafter are subject to judicial review in the court of appeals. Second, once the Commission's order has become final the Commission may obtain consumer redress by bringing suit in district court if "the Commission satisfies the court that the act or practice to which the cease and desist order relates is one which a reasonable man would have known under the circumstances was dishonest or fraudulent." 15 U.S.C. 57b(a)(3). When a defendant has exercised its right to judicial review of the Commission's final order, "the findings of the Commission as to the material facts * * * shall be conclusive" in any subsequent action for consumer redress. 15 U.S.C. 57b(c).

1. a. The underlying administrative adjudication began on May 17, 1983. The Commission issued a complaint charging petitioner with engaging in "unfair or deceptive acts or practices" in promoting its heat detectors, in violation of Section 5 of the FTC Act, 15 U.S.C. 45. Pet. App. A56. After a hearing,

an administrative law judge issued an initial decision; petitioner appealed that decision to the full Commission, which issued a cease and desist order. The Commission found that petitioner manufactured, offered for sale, and sold Vanguard heat detectors and smoke detectors that were purchased from other manufacturers. *Id.* at A63, A64.[1] These products were sold to consumers through distributors, whose practices, including the content of their sales presentations, were substantially controlled by petitioner. *Id.* at A66.[2]

Beginning in 1980 and continuing through the administrative proceeding, petitioner created promotional materials informing consumers that early detection is essential to a safe escape from residential fires. Pet. App. A71, A73. "[D]irectly or by implication," petitioner repeatedly told consumers that its heat detectors gave earlier warning than smoke detectors and "[i]n the event of most fires, its heat detectors [would] provide the necessary warning to occupants to allow them to escape safely." *Id.* at A102, A167. Petitioner's distributors regularly obtained from consumers a release acknowledging that only "partial fire detection protection" had been purchased if a consumer ordered less than the num-

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[1] The Commission's final order provides that "the initial decision of the administrative law judge [is] adopted as the findings of fact and conclusions of law of the Commission except where it is inconsistent with" the Commission's opinion. Pet. App. A208.

[2] Petitioner trained its distributors and urged them to use its training manuals, which included product information and scripts for opening and closing sales presentations. Petitioner instructed its distributors in sales methods and prepared the promotional materials they used. Pet. App. A67, A69-A97.

ber of heat detectors that petitioner had recommended. *Id.* at A97.

Although the emphasis on the effectiveness of Vanguard heat detectors vis-a-vis smoke detectors varied from one promotional piece to the next, "*every one* of them clearly convey[ed] [an] effectiveness claim for Vanguard heat detectors." Pet. App. A103 (emphasis added). Petitioner's promotional materials were effective; for every smoke detector that petitioner sold, petitioner also sold four or five heat detectors. *Id.* at A105.

The Commission based its findings of deception on evidence showing that, in nearly all residential fires, detectable quantities of smoke precede detectable levels of heat or the development of hazardous conditions, Pet. App. A113; and that all heat detectors, including the Vanguard, are subject to "thermal lag" (the time required for a detector's fuse to melt after the ambient air temperature reaches the level that should trigger the fuse), *id.* at A116-A117, A135-A136, A186-A187, A184 n.22. Those deficiencies on the part of heat detectors were established in a series of in-home tests performed in the 1970's by the National Bureau of Standards and Underwriters' Laboratories. *Id.* at A119-A120. The first test series comprised 37 test fires. In them, a heat detector was never the first device to activate, and in 14 tests, heat detectors never activated at all. On average, heat detectors did not activate until 2.2 minutes *after* the conditions exceed a "tenability limit," *i.e.*, the onset of hazardous levels of heat, smoke, or toxic gases within a room. *Id.* at A114.[3] In contrast,

[3] Experts generally agree that tenability limits for heat may be set at or near 150 degrees Fahrenheit measured five

smoke detectors provided an average escape time of 18.6 minutes. *Id.* at A123-A124, A177.

Petitioner criticized those tests, and at petitioner's insistence, a series of additional tests was conducted in 1975 and 1976. The second results were comparable to the first ones. No heat detector in the second series provided a 3-minute escape time in any of 22 tests. Pet. App. A124, A178.

As a result of those tests, the National Fire Protection Association (NFPA), an independent, nonprofit organization that acts as a clearinghouse for fire protection information and establishes standards for model building codes, Pet. App. A118-A119, revised NFPA Standard 74 in 1978 to eliminate all mention of heat detectors. *Id.* at 136. The American National Standards Institute approved that revision of the NFPA Standards as an American National Standard. *Id.* at A119.[4]

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feet from the floor, because 150 degrees is the temperature at which most fires will rapidly accelerate and reach considerably higher temperatures within a short time. For example, under some conditions ambient temperature can spike to 700 degrees within ten seconds after reaching 150 degrees. Pet. App. A122, A186; see *id.* at A117.

Similarly, tenability limits for smoke may be set at smoke obscuration between 10% and 15% per foot (smoke obscuration of 100% blocks all light at a distance of one foot from the light source). Pet. App. A114-A115, A122, A131-A133. Thus, smoke obscuration of 7% to 15% per foot may effectively block escape routes, depending on the distance a person must travel. For example, at the midpoint level of 11%, a person from a distance of 15 feet cannot distinguish a male from a female and can barely perceive the outline of a doorway. *Id.* at A122, A126.

[4] Although the language of NFPA Standard 74 has not been changed, the 1980 edition included a footnote "recommend-

In 1978, petitioner donated funds and Vanguard heat detectors for tests by the Los Angeles City Fire Department and the California Fire Chiefs' Association (the Cal Chiefs' Tests). Petitioner's chief engineer played a major role in planning those tests, which consisted of 71 fires set in typical one- and two-story completely furnished homes. More than 33% of the tests were devised, at petitioner's insistence, to include flaming-type kitchen fires, although such fires cause relatively few deaths. Every instrument panel in every test included a Vanguard heat detector, and the homes were monitored with instruments that collected millions of data points. Pet. App. A124-A125, A174-A175.

Smoke detectors in the Cal Chiefs' Tests activated between two and six minutes before any tenability limit was reached. Heat detectors never activated more than 1.3 minutes before a tenability limit was reached, and in 92% of the fires no heat detector activated until after a tenability limit had been reached. In every test, the fastest acting heat detector never responded before a smoke detector. Pet. App. A127-A128, A176. Although petitioner claimed that heat detectors provide early warning of hot, flaming fires, these tests proved that smoke detectors give earlier warning of both smoldering fires and flaming fires. As the NFPA concluded in 1980, " 'the

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[ing] that the householder consider the use of additional smoke or heat detectors * * * [as an] option." Pet. App. A137. Appendix A to NFPA Standard 74 continues to state that Standard 74 "utilizes smoke detectors as the primary life protection equipment" because "detectable quantities of smoke precede detectable levels of heat in nearly all" residential fires. *Id.* at A188 (footnote omitted).

results of full-scale experiments conducted over the past several years * * * indicate that detectable quantities of smoke precede detectable levels of heat in nearly all cases." Pet. App. A194, quoting NFPA CX 23K.

In light of that evidence, the Commission found that (1) "Vanguard heat detectors do not provide the necessary warning to allow safe escape from most residential fires" and that "[petitioner's] representations that Vanguard heat detectors [do] provide such warning are deceptive," and (2) "[petitioner's] claims that its heat detectors provide significant additional protection because they respond more quickly than smoke detectors to hot, flaming fires are false." Pet. App. A188, A194. The Commission also found that petitioner's false and deceptive claims were persuasive, noting that petitioner sold "four to five times as many heat detectors as smoke detectors," *id.* at A172 n.16, and that petitioner's claims were material, since the "representations concern the single most important characteristic of [petitioner's] heat detector: its effectiveness as a fire warning device," *id.* at A172.

b. Petitioner petitioned for review of the Commission's final order, arguing that the record did not support either the Commission's findings or the relief it ordered. The court of appeals affirmed and enforced the Commission's order in an unpublished per curiam opinion. *Figgie Int'l, Inc.* v. *FTC*, 817 F.2d 102 (4th Cir. 1987) (Table). The Commission's order became final on July 20, 1987.

2. a. On July 18, 1988, the Commission brought this action in district court, seeking consumer redress under Section 19(a)(2) of the FTC Act, 15

U.S.C. 57b(a)(2). The Commission's complaint alleged that a reasonable man in petitioner's position would have known under the circumstances that its practices were dishonest or fraudulent. CR 1 ¶ 9. The Commission sought redress for detectors sold between May 18, 1980, and July 20, 1987. See Pet. App. A8.

The Commission moved for partial summary judgment on the issue of petitioner's liability. The Commission relied on a prior district court order declaring that certain facts had been conclusively established, CR 25,[5] and on other materials in the court's record, including the ALJ's decision as adopted by the Commission, see note 1, *supra*, and the Commission's decision. Petitioner argued that it lacked specific intent to engage in fraud or dishonesty. Petitioner also submitted the declaration of a single employee, who stated that, in his opinion, petitioner had acted responsibly, CR 32 (Sterner Dec.), see Pet. App. A15;[6] a declaration from a fire

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[5] On appeal, petitioner argued, as it does here, that the district court erred in relying on the list of facts. The court of appeals rejected petitioner's argument, because "the Commission's findings control," and "[w]e review the district court's grant of summary judgment de novo." Pet. App. A12.

[6] The declarant stated that: (1) petitioner had received letters from many customers who had survived fires in their homes, CR 32, at 14 ¶ 10; (2) in 1989 (after the redress period) he had participated in a test in which a fire was set in a trash can in a trailer equipped with a heat detector, *id.* ¶ 11; (3) in 1983 he had witnessed a test in which heat detectors activated before sprinkler systems, *id.* ¶ 15; and (4) in August 1986 (after the Commission issued its decision) petitioner had requested a report based on the 1983 test, which concluded that petitioner's product "provided a 'reasonable level of available safe egress time.'" *Id.* ¶ 16.

protection engineer who expressed his belief "that heat detectors provide effective warning in many residential fires," *ibid.* (Patton Dec.), and a declaration from a consumer whose Vanguard heat detector had activated in 1987, *ibid.* (Ramsey Dec.).

The district court concluded that a reasonable man would have known that petitioner's practices were dishonest or fraudulent. Accordingly, the court held petitioner liable for consumer redress under Section 19. Pet. App. A49.

The Commission subsequently filed a second summary judgment motion asking that redress be awarded to all purchasers of petitioner's heat detectors during the relevant period. Pet. App. A51. In support of that claim, the Commission relied on the following evidence: (a) The Commission's earlier findings that petitioner's deceptions were both material and widely disseminated; (b) evidence that petitioner had continued its fraudulent or dishonest practices until the Commission's order became final; (c) stipulations by petitioner that it had sold 293,824 Vanguard detectors for which it received $7.59 million during the relevant period; and (d) computations showing that consumers paid an average price of $170.13 to retail distributors for each detector, so that the total consumer injury reached $49.95 million. *Id.* at A51-A53; CR 52. Petitioner offered transcripts from consumers who had purchased heat detectors that had activated and declarations from two distributors, who did not recall using certain specific promotional materials during the redress period. CR 67. Neither distributor, however, denied using petitioner's deceptive materials generally and neither one denied repeatedly making the claims that the Commission had found deceptive. *Ibid.*

Petitioner also argued that summary judgment was inappropriate because the Commission should not recover consumer redress under Section 19(b) of the FTC Act without first proving that each individual customer had heard and relied on petitioner's deceptive promotions. Petitioner further claimed that its detectors have some market value, but petitioner did not offer any evidence on that point.[7] Petitioner did not challenge the accuracy of the Commission's calculations, or the validity of the consumer sample used in those calculations, nor did petitioner offer an alternative method for determining total consumer injury, short of producing the final consumer sales records for each of the 293,824 Vanguard units that petitioner had sold.

The district court ruled in the Commission's favor. Citing Section 19(b) of the FTC Act, the court directed petitioner to deposit $7.59 million into an escrow account for payment by the Commission to consumers who submit valid claims. Pet. App. A54-A55. The court also directed the Commission to petition for an order requiring petitioner to pay additional amounts, up to a maximum of $49.95 million, if consumer claims exceed $7.59 million. *Ibid.* The district court's order also provided that, if consumer claims are less than $7.59 million, excess money should be distributed by the Commission for indirect

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[7] The record is devoid of any evidence from petitioner suggesting that its heat detectors have any fair market value. While petitioner offered testimonials from "satisfied" purchasers of its product, CR 63, that evidence did not address the issue of consumer injury. The question was not whether heat detectors respond, however belatedly, to fire; the question was whether anyone who knew the truth about how they operate would buy one. Petitioner did not offer evidence on that point.

consumer redress, such as corrective advertising or consumer education related to fire safety. *Id.* at A55.

b. The court of appeals affirmed the district court's judgment in part and reversed in part.[8] Starting with petitioner's claim that the Commission's proceeding dealt only with two narrow statements made by petitioner and that there are material issues of fact as to petitioner's knowledge and intent, the court concluded "[t]he Commission's final order encompasses far more than [the] two statements" that petitioner argued were the basis for the Commission's order. Pet. App. A13. The court held that petitioner's "tortured analysis" was merely "an impermissible attempt to relitigate the Commission's conclusive findings." *Ibid.*[9]

The court rejected petitioner's argument that a defendant cannot be held liable under Section 19 unless it acted with actual knowledge of the facts and a specific intent to defraud consumers. Noting that Section 19 imposes liability if "a reasonable person would have known under the circumstances" that its conduct "was dishonest or fraudulent," the court observed that petitioner's reading "does not fit

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[8] The court of appeals vacated the district court's minimum redress provision, which had required that any unclaimed portion of the $7.59 million minimum judgment be distributed by the Commission for indirect consumer redress. The court reasoned that such relief is not warranted in this case. Pet. App. A25-A26. The Commission has not sought review of that aspect of the court of appeals' ruling.

[9] The court also rejected petitioner's claim that some of its misrepresentations and its deceptions were not fraudulent or dishonest because they were "implied, not express." Pet. App. A17. The court determined that "[t]his is a distinction without a difference." *Ibid.*

the words and grammar of the statute." Pet. App. A14-A15. As the court explained, "[w]hen the findings of the Commission in respect to the defendant's practices are such that a reasonable person would know that the defendant's practices were dishonest or fraudulent, the district [court] need not engage in further fact finding other than to make the ultimate determination that a reasonable person would know. This is such a case." *Id.* at A15. The court therefore found the Commission's fact finding was dispositive of the reasonableness of petitioner's conduct and the "dishonest or fraudulent" nature of its practices. The court observed that petitioner "had no basis for doubting the truth * * *, yet [it] marketed its heat detectors in a manner designed to mislead consumers" and that petitioner "never provided [critical] information to consumers, preferring to disparage the value of smoke detectors instead." *Id.* at A18.

On the issue of redress, the court noted that the award of up to $49.95 million "creates no windfall for [petitioner's] customers." Pet. App. A23. That amount, the court ruled, was properly based on an unrebutted sampling drawn from information in letters from petitioner's customers of the prices consumers paid for petitioner's heat detectors. The court concluded that "[b]ecause the letters were admissible to prove the prices paid by consumers, and *because [petitioner] has offered no contrary evidence* to suggest that they paid any other price, there is no genuine issue of material fact preventing summary judgment as to the maximum amount of redress." *Id.* at A29-A30 (emphasis added).

The court also rejected petitioner's claim that "only those consumers that can prove that they purchased a Vanguard heat detector in reliance on [particular

misrepresentations or misleading] statements should be entitled to redress." Pet. App. A20. "As a factual matter," the court found that evidence of consumer reliance was well-grounded in the Commission's findings, noting by way of example that "[petitioner's] sales materials advocated the purchase of four or five heat detectors per smoke detector, and that matches [petitioner's] actual sales ratio." *Ibid.* The court also held "as a matter of law * * * [a] presumption of actual reliance arises once the Commission has proved that the defendant made material misrepresentations, that they were widely disseminated, and that consumers purchased the defendant's product." *Id.* at A20-A21. The court concluded that "[b]ecause [*petitioner*] *has presented no evidence to rebut the presumption of reliance*, injury to consumers has been established," and summary judgment was appropriate. *Id.* at 21 (emphasis added).

ARGUMENT

Petitioner has not advanced any legal question that warrants this Court's review. This is the first case in which an appellate court has expressly construed Section 19(a)(2) of the FTC Act, and there is no conflict among the circuits concerning the meaning of that statute. Moreover, the lower court's application of Section 19 to the facts of this case is consistent with that provision's text and its legislative history, as well as applicable standards for granting summary judgment.

1. Petitioner contends that Section 19 requires at least a showing of reckless conduct. Pet. 10. Petitioner did not make that argument in the court of appeals, however, and that court did not pass on

the question. Accordingly, petitioner's claim is not properly before this Court. See, *e.g.*, *United States* v. *Lovasco*, 431 U.S. 783, 788 n.7 (1977); *Adickes* v. *S.H. Kress & Co.*, 398 U.S. 144, 147 n.2 (1970). In any event, the result in this case would not be affected by the rule that petitioner has endorsed, because the undisputed facts demonstrate recklessness on its part.

In the courts below, petitioner argued that Section 19 requires proof that its practices were "specifically intended to deceive and defraud consumers." Pet. C.A. Br. 35. The courts below rejected that position, and their rulings are consistent with the few other cases that have addressed the issue. See *FTC* v. *Macmillan, Inc.*, 1983-2 Trade Cas. (CCH) ¶ 65,553 (N.D. Ill. 1983); *FTC* v. *Glenn W. Turner*, 1983-1 Trade Cas. (CCH) ¶ 65,244 (M.D. Fla. 1982).

In *Turner*, the Commission sought consumer redress for injuries caused by a pyramid sales scheme. In finding liability, the court noted that *at a minimum* ("at least") Section 19 reaches acts that would be unlawful under the mail fraud statute, 18 U.S.C. 1341. 1983-1 Trade Cas. (CCH) at 69,451. The court found the scheme unlawful under the criminal statute and concluded, *a fortiori*, that it gave rise to redress under Section 19. The court also intimated that redress could be appropriate for conduct that does not reach the mail fraud standard of being "reasonably calculated to deceive persons of ordinary prudence and comprehension." 1983-1 Trade Cas. (CCH) at 69,451. In *Macmillan*, the court, although denying redress, stated that "[i]n applying the *Glenn Turner* standard for 'dishonest or fraudulent' conduct, the Court does not mean to suggest that Section

19 of the FTC Act requires proof of a defendant's actual intent to defraud consumers." [10] Neither *Turner* nor *Macmillan* suggests that liability under Section 19 hinges upon a showing of specific intent or recklessness. See also *FTC* v. *Amy Travel Service, Inc.*, 875 F.2d 564, 573-574 (7th Cir.) (rejecting claim that the FTC must prove "subjective intent to defraud" to obtain monetary equitable relief under Section 13(b) of the FTC Act, 15 U.S.C. 53(b)), cert. denied, 493 U.S. 954 (1989).[11]

There is no merit to petitioner's claim that there is a conflict among the circuits on the interpretation

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[10] Petitioner suggests that *Macmillan* requires a wide-ranging inquiry by the court into the nature and circumstances of the defendant's conduct. Pet. 12. That argument overlooks a critical distinction between this case and *Macmillan*. Here, the Commission's findings are deemed conclusive by operation of statute, because petitioner had previously petitioned for review of the Commission's order, and the Fourth Circuit had upheld the order. By contrast, the Commission's final order in *Macmillan* had not been subjected to judicial review. Therefore, the district court in that case had to review the Commission's findings to determine whether they were supported by the evidence. See 15 U.S.C. 57b(c)(1)(B)(ii). Compare *FTC* v. *Glenn W. Turner*, 1983-1 Trade Cas. (CCH) ¶ 65,244, at 69,449.

[11] Although *Amy Travel* was a suit for injunctive and monetary equitable relief brought under Section 13(b), the courts have frequently applied Section 19 standards in determining whether to grant monetary equitable relief in such suits. See, *e.g.*, *FTC* v. *Kitco of Nevada, Inc.*, 612 F. Supp. 1282 (D. Minn. 1985); *FTC* v. *International Diamond Corp.*, 1983-2 Trade Cas. (CCH) ¶ 65,725, at 69,708-69,709 (N.D. Cal. 1983); see also *FTC* v. *H.N. Singer, Inc.*, 668 F.2d 1107, 1109-1111 (9th Cir. 1982) (discussing the relationship between Sections 13(b) and 19).

of Section 19. Petitioner relies entirely on cases holding that a private litigant must establish more than mere negligence to recover damages for violations of Section 10(b) of the Securities Act of 1934, which makes it unlawful for any person "[t]o use or employ [in securities transactions] * * * any manipulative or deceptive device or contrivance," 15 U.S.C. 78j(b). See, *e.g.*, *Ernst & Ernst* v. *Hochfelder*, 425 U.S. 185, 195-196 (1976). Since the text of Section 10(b) of the Securities Act of 1934 does not even loosely track the language of Section 19 of the FTC Act, the cases petitioner cites are inapposite.

Moreover, even if it were appropriate to construe Section 19 of the FTC Act to incorporate a standard of liability more demanding than a negligence standard, the record amply supports the lower courts' conclusion that a reasonable person would have known that petitioner's conduct was dishonest or fraudulent. The Commission's administrative findings, upheld by the Fourth Circuit at an earlier stage of this litigation, conclusively established what petitioner knew when it deceived consumers. The Ninth Circuit correctly held that those issues could not be re-litigated in the district court at this stage of the case, because Section 19(c) of the FTC Act requires that the Commission's findings be deemed conclusively established.

Finally, even if petitioner could have relitigated the issue of its knowledge, its opposition to the Commission's motion for summary judgment did not satisfy Fed. R. Civ. P. 56(e), because the declarations petitioner offered missed the point. At most, those declarations showed that heat detectors detect heat and are effective in some fires. But the Com-

mission had sought redress for consumers based on petitioner's false claim that "its heat detectors provide significant additional protections because they respond more quickly than smoke detectors to hot, flaming fires," Pet. App. A194, as well as petitioner's deceptive claim that its heat detectors "provide the necessary warning [to allow] safe escape [from] most residential fires," *id.* at A188. Petitioner's declarations did not refute its knowledge that heat detectors respond much more slowly than smoke detectors to hot flaming fires and do not give consumers adequate warning to allow them safely to escape from most residential fires.

2. Petitioner also argues that the Commission should not be able to obtain redress for consumers without proving that individual consumers relied on a party's misrepresentations or omissions. Pet. 21-27. That claim lacks merit.

The courts have uniformly rejected the contention that the Commission must prove subjective reliance by individual consumers to obtain consumer redress. The courts have held, instead, that in order to satisfy the reliance requirement of Section 13(b) of the FTC Act, the Commission need show only that a defendant's misrepresentations or omissions were of a kind upon which a reasonable and prudent person would rely, that the misrepresentations or omissions were widely disseminated, and that consumers actually purchased the product. *FTC* v. *Security Rare Coin & Bullion Corp.*, 931 F.2d 1312, 1316 (8th Cir. 1991); *FTC* v. *Amy Travel Service, Inc.*, 875 F.2d at 573; *FTC* v. *Kitco of Nevada, Inc.*, 612 F. Supp. 1282, 1293 (D. Minn. 1985); *FTC* v. *Atlantex Assocs.*, 1987-2 Trade Cas. (CCH) ¶ 67,788, at 59,255-56 (S.D. Fla. 1987), aff'd, 872 F.2d 966

(11th Cir. 1989); *FTC* v. *International Diamond Corp.*, 1983-2 Trade Cas. (CCH) at 68,708-709.[12] It would be virtually impossible for the Commission to offer individualized proof, the courts have reasoned, so that such a rule would frustrate the purpose of the Act. *FTC* v. *Security Rare Coin & Bullion Corp.*, 931 F.2d at 1316.[13]

As was true with respect to liability, petitioner did not offer evidence to rebut the presumption of reliance in response to the Commission's summary judgment motion. Petitioner's claims of the effectiveness of its heat detectors appeared on "every one" of petitioner's promotional pieces, Pet. App. A103, and petitioner's only opposing evidence on this issue consisted of two declarations by distributors who failed even to deny that they or their salesmen had made false and deceptive claims. See page 9, *supra*. In these circumstances, further review of petitioner's claim is not warranted.

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[12] Those cases were all decided under Section 13(b) of the FTC Act, which has been construed to embody the same standards as Section 19. See note 11, *supra*.

[13] The courts have adopted the same rule in cases arising under other laws. For example, this Court has held, in private actions under the securities laws, that individualized proof of each victim's subjective reliance is not required where deception results from the withholding of material facts. See *Affiliated Ute Citizens* v. *United States*, 406 U.S. 128, 153-154 (1972). See also *DuPont* v. *Brady*, 828 F.2d 75, 78 (2d Cir. 1987) (proof of material deception raises a presumption of reliance, which the defendant may rebut only by proving subjective non-reliance by the particular victim).

CONCLUSION

The petition for a writ of certiorari should be denied.

Respectfully submitted.

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(1) Heat detectors "will give immediate early warning."

(2) Heat detectors provide "fast response to hot fires." [2]

(3) Smoke detectors provide only "partial protection."

(4) "Mechanical heat detectors are essential to provide the reliability that smoke detectors lack and to guard against the many types of fires where smoke detectors may be ineffective."

(5) "The 'VANGUARD' Thermosonic 50-Ft. Heat Detector and the 'VANGUARD' Smokesonic Smoke Detector will provide the combination needed to give a greater measure of life safety."

PAR. 5. Through the use of these representations, and others of similar meaning, and by offering its fire alarm products as fit for the purpose of affording fire warning protection to residential occupants, respondent represents, directly or by implication, that:

(1) In the event of fire, respondent's heat detectors provide sufficient warning to occupants to allow them to escape safely.

(2) Respondent's fire alarm systems combining heat detectors and smoke detectors provide significantly greater fire warning protection for occupants than smoke detectors alone.

PAR. 6. In truth and in fact:

(1) In nearly all residential fires, life endangering conditions will occur prior to the activation of respondent's heat detectors. Such heat detectors, therefore, do

not provide sufficient warning to occupants in the event of fire.

(2) Respondent's fire alarm systems combining heat detectors and smoke detectors do not provide significantly greater fire warning protection for occupants than smoke detectors alone.

Therefore, the statements and representations set forth in Paragraphs Four and Five were and are deceptive and unfair.

PAR. 7. Respondent's use of the aforesaid deceptive and unfair statements and representations has had and now has the capacity and tendency to deceive consumers and to induce purchases of substantial quantities of respondent's products. [3]

PAR. 8. The acts and practices of respondent, as herein alleged, were and are all to the prejudice and injury of the public and constituted, and now constitute, unfair and deceptive acts or practices in or affecting commerce in violation of Section 5 of the Federal Trade Commission Act.

INITIAL DECISION BY

MONTGOMERY K. HYUN, ADMINISTRATIVE LAW JUDGE

OCTOBER 23, 1984

PRELIMINARY STATEMENT

On May 17, 1983, the Federal Trade Commission ("Commission") issued an administrative complaint charging Figgie International, Inc. ("Figgie") with a violation of Section 5 of the Federal Trade Commission Act, as

amended (15 U.S.C. 45), in connection with certain product claims allegedly made by Figgie in the distribution and sale of heat detectors. On July 1, 1983, Figgie filed an answer denying that it violated the Federal Trade Commission Act as charged. On November 8, 1983, Paragraphs 5 and 6 of the complaint were amended so as to change several words. The amended complaint alleged generally that promotional materials supplied to and used by Figgie distributors during in-home sales presentations contain express and implied effectiveness claims for Vanguard heat detectors which are deceptive and unfair. More specifically, the amended complaint challenges the lawfulness of alleged product claims (1) that in the event of most fires Vanguard heat detectors provide the necessary warning to allow a safe escape in residential fires and (2) that Vanguard fire alarm system combining heat detectors and [2] smoke detectors provide significantly greater fire warning protection than smoke detectors alone.

Evidentiary hearings for the presentation of complaint counsel's case-in-chief began on April 30, 1984 and ended on May 9, 1984. Defense hearings began on June 13, 1984 and ended on June 20, 1984. Sixteen witnesses gave testimony. The transcript of hearings, including prehearing conferences, consists of some 1,700 pages and about 86 exhibits, including a number of slides and tapes, were received in evidence. The evidentiary record was closed on July 6, 1984.[1]

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[1] By order of September 18, 1984, the Commission extended the due date of this initial decision to October 23, 1981.

The proposed findings and conclusions submitted by the parties and their arguments in support thereof have been given careful consideration by me and to the extent not adopted by this Initial Decision, in the form proposed or in substance, are rejected as not supported by the evidence or as immaterial. Any motion appearing on the record not heretofore or hereby specifically ruled upon either directly or by the necessary effect of the conclusions in this Initial Decision are hereby denied.

Upon consideration of the entire record in this proceeding and having considered the demeanor of the witnesses, I make the following findings of fact and conclusions of law and order based on the record considered as a whole:[2] [3]

Findings of Fact

I. JURISDICTION

1. Respondent Figgie International, Inc. ("Figgie") is a corporation organized and doing business under the

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[2] For the purposes of this initial decision, the following abbreviations were used:

F.	–	Finding of Fact in this decision
CPF	–	Complaint Counsel's Proposed Findings
RPF	–	Respondent's Proposed Findings
CR	–	Complaint Counsel's Reply
RR	–	Respondent's Reply
Tr.	–	Transcript of hearings, sometimes preceded by the name of the witness
CX	–	Complaint Counsel's exhibit
RX	–	Respondent's exhibit
Comp.	–	Complaint
Ans.	–	Answer

laws of Ohio, located at 1000 Virginia Center Parkway, Richmond, Virginia (Ans. of Figgie, ¶ 1).

2. Figgie is now and has been engaged in the distribution, promotion, offering for sale and sale of heat and smoke detectors under the trade name "Vanguard" (CX 135, Respondent's Response to Complaint Counsel's Request for Admission No. 2).

3. Figgie, through its Interstate Engineering Division (hereinafter sometimes referred to as "Figgie-Interstate"), ships goods, including but not limited to Vanguard heat detectors and smoke detector, through interstate commerce (CX 135, Admission No. 6).

4. The Interstate Engineering Division of Figgie had total sales of about $29,939,000 for the period January 1, 1981 through May 31, 1983 (CX 135, Admission No. 5).

5. Figgie-Interstate had total sales of about $23,212,000 for the period January 1, 1979 through December 31, 1980 (CX 125).

6. In the course and conduct of its business, Figgie-Interstate has produced and disseminated promotional material though the United States mails pertaining to Vanguard smoke and heat detectors for the purpose of promoting the sale of Vanguard fire alarms (CX 135, Admission No. 8).

7. In the course and conduct of its business, and at all times relevant to the Complaint, Figgie-Interstate has maintained a substantial course of trade in these products, in or affecting commerce, as "commerce" is defined in the Federal Trade Commission Act (CX 135, Admission No. 10).

II. BUSINESS OF RESPONDENT

A. *Company History*

8. Figgie was known as A-T-O, Inc., until the name was changed in 1981 (Schoettler 1259). The name change did not signify any change in Figgie-Interstate's method of doing business (Schoettler 1259; McGee 602; Sterner 1575.) **[4]**

9. Figgie is a diversified international operating company with 30 major divisions marketing industrial, consumer and technical products. Some of Figgie's better known products include American La-France fire apparatus and Rawlings sports equipment (CX 62B). Figgie claims to be the "World's Largest Integrated Manufacturer of Fire Protection and Security Equipment." Annual sales are in excess of $700 million (CX 62B).

10. Interstate Engineering was at one time an independent corporation headquartered in California. In 1959, Interstate introduced the first Vanguard heat detector. In November 1967, Interstate merged into A-T-O and it is now an operating division of Figgie (CX 64L).

B. *Fire Alarm Products Offered For Sale*

11. Figgie-Interstate is now and has been, at all times relevant to the complaint, engaged in the manufacture of fixed-temperature heat detectors which are sold for the purpose of providing fire warning protection to residential occupants (CX 135, Admission Nos. 1 and 12).

12. Figgie-Interstate, at all times relevant to the complaint, has purchased the smoke detectors it sells from outside manufacturers (Sterner 1620).

13. Since 1971, Figgie-Interstate has offered for sale and sold Vanguard heat detectors containing either a 136° or a 175° fuse (Sterner 1614). An improved, 117° fuse was first offered for sale in April 1982 (CX 94A; Sterner 1614). In August 1983, the 117° fuse became the standard fuse used in a Vanguard heat detector (Sterner 1615).

14. Figgie-Interstate also offers for sale and sells both A.C.-D.C. photoelectric smoke detectors and battery operated ionization smoke detectors (CX's 93, 71Z-11). the photoelectric smoke detector currently sold by Figgie-Interstate is designed to activate once smoke density reaches approximately 1.5% (CX 64W).

C. *Marketing Of Heat And Smoke Detectors*

15. Figgie-Interstate offers for sale and sells Vanguard heat and smoke detectors to distributors located nationwide (CX 135, Admission No. 7; McGee 604) who in turn sell the products through in-home sales presentations to consumers (McGee 609; Hammack 231). Figgie-Interstate has a contractual relationship with these distributors (McGee 645).

16. Between January 1, 1981 and May 31, 1983, Figgie-Interstate has generated about $2,354,000 in heat detector [5] sales. For the same time period, Figgie-Interstate has generated about $620,000 in smoke detector sales (CX 127).

17. The standard package of heat and smoke detectors sent by Figgie-Interstate to distributors contains either five heat detectors and one smoke detector or six heat detectors alone (Schoettler 1269).

18. Sales figures from January 1, 1979 to May 31, 1983 indicate that Figgie-Interstate sells between four and five heat detectors for every smoke detector sold (CX's 127A, 125). Interstate currently sells both the 136° and 117° heat detector to distributors for $32.75. Interstate charges distributors $46.00 per unit for the smoke detectors (CX 127B) The testimony of Vanguard fire alarm purchasers called as respondent's witnesses indicate that they paid about $100 per detector (Gwinn 1483; Hodja 1514) and have bought about five heat detectors for every one smoke detector (Hartley 1477; Shaw 1556; Hodja 1506; Gwinn 1477; Losito 1464).

19. Figgie-Interstate, in the regular course of its business, receives and maintains owner registration cards from distributors indicating the name and address of the purchaser, the number of Vanguard alarms installed, the purchase date and the name of the distributor responsible for the sale (CX 79; Hammack 2591).

20. Figgie-Interstate prepares, produces, and supplies promotional materials for use by its distributors during in-home sales presentations (CX 136, Amended Answer to Requested Admission No. 9; McGee 626-27,632,644; Hammack 212,214,218,247,250,252). These materials contain detailed elements of the sales presentations to the made to consumers (Hammack 215; McGee 626).

21. Figgie-International, in the course and conduct of its business, and at all times relevant to the complaint, has exercised substantial control over the promotional practices of its distributors regarding the sale of Vanguard heat and smoke detectors, including the content of the sales presentation.

22. Until 1981, Interstate had relied upon a hierarchy of distributors referred to as divisional, regional and factory-direct. Divisional distributors had the largest sales territories and oversaw the activities of regional distributors. In turn, regional distributors were responsible for the factory-direct distributors operating within their respective regions. Figgie-Interstate paid a commission to divisional and regional distributors based on the purchase volume of those distributors for whom they were responsible (McGee 604-05, 608). Factory-direct distributors frequently establish subdistributors whom they supply (Hammack 206). [6]

23. During 1981, Interstate made all existing distributors factory-direct distributors. This change was prompted by Interstate's decision that divisional and regional distributors were not "giving them enough help" (McGee 608).

24. All factory-direct distributors, appointed by Figgie-Interstate, are assigned a primary area of responsibility as stipulated in a written agreement with Figgie-Interstate (Schoettler 1268; McGee 603). Figgie-Interstate also establishes sales quotas for those areas of primary responsibility (Schoettler 1268; CX's 85, 135, Admission No. 16).

25. Figgie-Interstate maintains a substantial role in the training of its distributors. It is recommended to all distributors that they rely upon the two-volume training manuals (CX's 64-65) for detailed information relating to hiring and training of their salesmen, and for sales presentations including scripts for opening and closing the sales presentation, lead generation and product information (Schoettler 1259; Sterner 1655). To date, Figgie-Interstate has sold about 5,000 copies of CX's 64 and 65 to its distributors (Interrogatory No. 34).

26. Figgie-Interstate holds regular sales meetings for Vanguard distributors where they are instructed by Figgie-Interstate personnel about sales presentations, lead generation and recruiting of sales people (CX's 87, 91-92, 96-97, 9P, 99-100).

27. Figgie-Interstate personnel regularly travel to various regions of the country to instruct distributors on how to stimulate sales and to show them how to do a proper sales presentation (Sterner 1656; CX 135, Admission No. 42; McGee 611). Distributors are further monitored by regular telephone calls from Interstate's Vice President for Marketing and its National Sales Director (Sterner 1660; CX 135, Admission No. 71).

28. Prior to November 1979, Interstate hired consultants, often known as National Trainers, to visit various distributorships and instruct them on such matters as day-to-day operation of the business, marketing of products and product information (CX 135, Admission No. 63; McGee 610).

29. On occasion, Figgie-Interstate instructs its distributors to memorize scripts prepared by Interstate for use in sales presentations (CX's 64Z-13, 88; Sterner 1655).

30. On occasion, distributors and Interstate personnel work together to develop new promotional material including the script for the slide presentation released by Figgie-Interstate in January 1983 (CX 135, Admission No. 59).

31. In order to stimulate sales, Figgie-Interstate sponsors sales contests among distributors and establishes award programs (CX 135, Admission Nos. 44 and 74). Figgie-Interstate has [7] provided funds to pay some of distributors' costs for advertisements recruiting salespersons (CX 89, 135, Admission No. 77).

32. In the course and conduct of its business, and at all times relevant to the complaint, Figgie-Interstate has produced and disseminated promotional materials which constitute a major portion of the sales presentation made by Vanguard distributors to consumers (Hammack 215; McGee 626).

33. Most of the promotional materials prepared, produced and distributed by Figgie-Interstate contain performance claims relating to Vanguard heat detectors (CX 136, Amended Response to Requested Admission No. 11; CX's 61C, G, 63, 66, 67M-N, P, S, 68B, 69C-D, 70B, E, G, 71Z-10, Z-12).

34. A method nationally employed by Vanguard distributors and recommended by Figgie-Interstate for purposes of generating sales leads included the offer of a free fire extinguisher to consumers who had filled out a

registration card giving his or her name and address. The cards were deposited into drop boxes located in retail outlets and at trade fairs and were subsequently used by local Vanguard distributors to schedule sales presentations (CX 64Z-20; Hammack 228; Hodja 1504).

III. FIGGIE-INTERSTATE'S SALES PRESENTATION AND PROMOTION OF VANGUARD FIRE ALARM DEVICES

35. The sales presentation consists largely of promotional materials supplied to distributors by Figgie-Interstate. These in-home presentation materials include slide shows, testimonial letters, brochures and booklets, demonstration materials, government fire study excerpts and other materials, all intended to drive home the real danger of home fires and to induce the consumer to purchase Vanguard heat detectors, often in a system including a token number of smoke detectors. Figgie-Interstate recommends that heat detectors be installed in every room, including living rooms, bedrooms, kitchens, dens, basements, attics and garages; and perhaps a smoke detector outside the sleeping areas (CX 66M, 135, Admission No. 27; Sterner 1620).

A. *The Slide Presentation*

36. An important element of the sales presentation is a slide presentation with a synchronized audio tape, entitled "Home Safety Program," which is prepared and disseminated by Figgie-Interstate. There have been two editions of the slide show. The first, CX 131 (CX 129, audio tape for old slide show; CX 130, transcript of CX

129), was in use from 1980 until early 1983. The second, CX 133 (CX 132, audio tape for new slide show; a [8] transcript of CX 132 appears on Tr. 1586-1604), has been in use since January 1983 (CX 135, Admission No. 59; Hammack 234; McGee 640, 644). Interstate's Vice President of Marketing, Irv Sterner, is of the opinion that the new slide presentation produced by Figgie-Interstate is the most effective piece of promotional material provided to Vanguard distributors for use during in-home sales presentations (CX 135, Admission No. 50).

37. According to Sterner, the new slide presentation (CX 133) is "totally different" from the old slide show (CX 131). Dr. Cohen, complaint counsel's expert witness, viewed both versions and characterized them as very similar in content and impact (Cohen 305-08). The evidence shows that the number of slides were reduced from 100 in the old version to 90 in the new, 64 of the old 100 slides were removed together with corresponding audio and, of the remaining 36 slides the accompanying audio was changed in many of them (Sterner 1573-74). The administrative law judge had occasion to view both versions and came away with a distinct impression that both versions conveyed a similar message regarding the real danger of night-time fires in homes and the effectiveness of Vanguard heat detectors as early warning devices, which have saved many lives.

38. The slide shows vividly depict residential fires, homes engulfed in raging flames and choking smoke and show alarming fire statistics regarding the real danger of night-time residential fires. In one fearful fire scene after another, the viewer is shown what a reliable fire warning

device like Vanguard heat detector can do to save lives and property in residential fire situations.

39. The audio portion of the new slide show (CX 133) contains the following express representations:

a. The information you are about to hear may mean the difference between life and death for your family. So listen more carefully than you have ever listened before. (Tr. 1587).

b. The purpose of our visit is to tell you how fires start, how they spread and most important, how to survive (Tr. 1588).

c. Authorities say there are two things necessary to save you and your family in case of fire. "The first is adequate warning" (Tr. 1590).

d. When your fire occurs, it could be at night, the real danger time for your family. The vast majority of fire fatalities occur between the hours of 11:00 p.m. and 6:00 a.m. when most people are sleeping. Not more fires, more fire deaths (Tr. 1594). [9]

e. The most feared [toxic by-product of fire is] carbon monoxide The [sic] gas is produced in abundance in every fire. It is odorless, colorless, and tasteless. A very short exposure to this gas will not only induce sleep, but render you unconscious and, finally, death (sic; Tr. 1596).

f. However, regardless of the physical cause of fire fatalities, the real killer is time. If every family were warned of the fire in time, nighttime fire deaths and injuries could be virtually eliminated (Tr. 1598).

g. Under normal conditions with the bedroom door open a family had just 1.8 minutes from the time a fire started until it was too late. Even closing the bedroom door only gave them 5.6 minutes (Tr. 1598).

h. Imagine if an early warning system existed for your car that could warn you minutes before a fatal crash. We would all want one. A system like that of course does not exist. Yet, an early warning system does exist that will warn you minutes before a fatal fire condition exists in your home (Tr. 1599).

40. The audio portion of the old slide show (CX 130) contains the following express representations:

a. A few months ago we had a serious fire in our home that resulted in a financial loss and a much greater loss, the life of our nine year old son. We had one smoke detector and a false sense of security. The fire we had was so hot that by the time the smoke detector sounded it was too late. We now realize that to have adequate protection the home must have heat detectors as well as smoke detector [sic] (CX 130C).

b. We suggest that you watch the film and draw your own conclusions as to whether you want the protection provided by a cheap smoke detector or the protection offered by a combination system (CX 130C).

c. As the oxygen content in the air is burned up and the carbon monoxide increases your senses are gradually dulled so that you sleep more soundly. This is one of the main causes of residential fire fatalities (CX 130D). [10]

d. They die because the fire is not discovered in time for them to get out (CX 130E).

e. Vanguard can give you that extra measure of life safety when the fire starts (CX 130F).

f. We know we had made the right decision as we heard the life saving sound of the heat detector which warned us of an overheated furnace. Without this protection the result could have been a tragedy (CX 130F).

g. Tests show that you may have as little as 1.8 minutes to escape with your life (CX 130G).

h. We have all ready [sic] saved thousands of lives and million [sic] of dollars in property (CX 130M).

i. Numerous fire authorities recommend the Vanguard system (CX 130M).

j. Chief Joe Armstrong of the Andover Fire Department, Chief Boyd Tuttle, Columbia Fire Department and Chief Ray Gergeler, Eagleville Fire Department witness the activation at the first alarm only 15 seconds after the start of the fire in a demonstration house fire. The heat detector located on the ceiling at the top of the adjoining room activated only five seconds after the first detector. The third heat detector located on the ceiling at the top of the stairwell activated four seconds later. It took nearly 33 seconds for the smoke detector to activate (CX 130M).

k. Automobile accidents kill thousands of people each year just as fire does. If you could get a device that you could put on your car to let you know two or three minutes before you have a wreck to allow everyone to get safely out of the car, would you want one? Certainly you would. Everybody knows there is no such device for cars but there is for fire. That is exactly what Vanguard is (CX 130N).

B. *Promotional Brochures And Booklets*

41. CX 61, entitled *Disneyland Hotel is a Pioneer in Life Safety (Disneyland Hotel)* is a 8-page promotional piece copyrighted by Interstate Engineering in 1981, 1982 and 1983. The cover page bears, in addition to the title, a large [11] photograph of the Disneyland Hotel. During the in-home sales presentation, Vanguard distributors make CX 61 available to prospective purchasers (Hammack 247;

McGee 638). Interstate produces and distributes CX 61 and has sold about 14,000 copies to its distributors (CX 61, Interrogatory No. 34). Irv Sterner, Interstate's Vice President of Marketing, is of the opinion that CX 61 is the third most effective pieces of Vanguard heat detector promotional literature (CX 135, Admission No. 51).

42. CX 61, *Disneyland Hotel*, purports to report the results of an activation test of 175 Vanguard heat detectors that had been in use in the Disneyland Hotel in Anaheim, California, since January 1960. The test was conducted at Interstate's facilities on October 16, 1980 (CX 61C).

43. According to CX 61, in this first-time-anywhere, large-scale "dependability test" of mechanical heat detectors, all of the 175 Vanguard heat detectors, each of which had remained at its installation site without service for as long as 20 years, "responded within the designated temperature range by sounding a loud alarm lasting four and five minutes."

44. CX 61C also contains the following statements:

This proof of long-term dependability did not surprise the manufacturer. VANGUARD heat detectors came into existence in 1959 and since then Interstate Engineering has received over one thousand letters evidencing the saving of thousands of lives through the use of millions of VANGUARD heat detectors.

The VANGUARD heat detectors used in the activation had been installed in the two-story garden style guest rooms of the Disneyland Hotel in January, 1960 and since VANGUARD heat detectors do not require maintenance, each remained at its installation site without service. The Disneyland Hotel estimates that, since the heat detectors

were installed, 4,343,255 people have stayed in rooms having VANGUARD heat detectors. Because the heat detector performed so well, the Disneyland Hotel installed the latest model of the VANGUARD Thermosonic Heat Detector (as well as a smoke detector) in each room already having a VANGUARD heat detector when those rooms were remodeled.

Interstate Engineering also markets VANGUARD smoke detector alarms, fire escape ladders and fire extinguishers. **[12]**

45. CX 61C, which is followed by three pages of photographs, bears a notation printed in bold types, at the bottom of the page, which reads:

IMPORTANT

The presence of representatives from the Disneyland Hotel, the Los Angeles County Fire Department and the Orange County Fire Department in no way represents an endorsement of the items tested.

The United States Government, fire authorities, Interstate Engineering (a Figgie International Company), and VANGUARD distributors strongly recommend the installation of an adequate number of early fire warning detection devices.

46. The following page, CX 61D, shows two photographs. The top half of the page shows a large number of heat detectors arranged on a long table. Standing behind the table is a small group of men. The legend to the left of this photograph reads: "Participating in the test were IEC personnel and Captain Richard Schiehl, (third from right) Los Angeles County Fire Department and Fenton Hill, (second from right) Disneyland Hotel." The bottom half

shows a partial view of a table bearing several rows of heat detectors and two uniformed officers, standing behind the table, and one examining a detector held in his hands. The legend to the left of this photograph reads: "(l-r) Captain Richard Schiehl, Los Angeles County Fire Department and Captain Charles Pister, Orange County Fire Department timing the four to five minute alarm cycle."

47. CX 61E shows two photographs. The top half of the page shows a man, standing by a table bearing a number of heat detectors, examining a detector held in his hands. Standing next to the man is a uniformed officer holding a notepad in one hand and looking at the detector hand-held by the other man. The legend to the right of the picture reads: "Captain Charles Pister, Orange County Fire Department and Fenton Hill, Disneyland Hotel observing the condition of the VANGUARD heat detectors prior to the test." The bottom half of the page shows a long display table bearing rows of heat detectors and a man holding a hair-dryer like apparatus over a heat detector. Opposite him across the table stands a uniformed officer looking on and picking up a heat detector. The legend to the right reads: "(l-r) John Kelly, IEC director of consumer relations activating VANGUARD heat detectors while Captain Richard Schiehl of the Los Angeles County Fire Department checks the gauge type thermometer in order to note the temperature at which the activation occurs." **[13]**

48. CX 61G contains the following statement:

New VANGUARD heat detector alarms were recently installed in the Garden Villas at The Disneyland Hotel.

Features that made early models of the VANGUARD heat detector so reliable have been maintained while some outstanding improvements have been made. VANGUARD'S latest innovations over the heat detectors formerly in use at the Disneyland Hotel include:

- A doubling of the sensitivity range
- Increased escape time due to a faster response time
- The decibel level of the alarm has been raised
- The duration of the alarm sound has been increased
- The state of fail-safe readiness is assured because the heat detector cannot be fused unless the alarm is fully powered.

The Disneyland Hotel now has the benefit of all these improvements in their heat detectors, and in addition smoke detectors have also been installed.

49. The top half of the last page, CX 61H, shows a large photograph of a five heat detector/one smoke detector configuration. The legend which appears below the photograph reads:

VANGUARD Thermostatic Heat Detector Alarms and VANGUARD Smokesonic Smoke Detector Alarm

50. CX 63 is a one-page promotional piece styled as a red-letter news release bulletin directed to Interstate distributors, issued in July 1978, and features quotations attributed to a U.S. National Bureau of Standards official. The headline quotation reads: "HEAT DETECTORS HAVE PROBABLY SAVED MORE LIVES AND [14] PROPERTY THAN ANY OTHER FIRE DETECTION DEVICE." The narrative portion of this "news release bulletin" prints two quotations purportedly taken from a

speech by Richard W. Bukowski, U.S. Bureau of Standards, Center for Fire Research, given at the National Fire Protection Association (NFPA) Annual Meeting in Anaheim, California. The bulletin then states:

We are pleased to see the U.S. National Bureau of Standards recognize these important facts. Those of you who have been protecting families with Vanguard know from first-hand experience how true these National Bureau of Standards statements are. They exactly summarize the position Vanguard has taken in recommending "combination systems" through the years.

It means the **only** way to provide complete and sure fire-warning protection is by using both smoke detectors and heat detectors, by using completely non-electrical devices in addition to the electrical devices and by combining long-lived reliability with timely response.

If one is not going to have a fire, it is a total waste of money to install even one detector. But, if one is going to have a fire, he had better have complete and sure fire-warning protection. At the present state-of-the-art, there is no other way to accomplish this except with a "combination" system of smoke detectors guarding the approaches to the bedrooms and mechanically-powered heat detectors in the other major rooms.

51. During the sales presentation, Vanguard distributors make CX 63 available to prospective purchasers (Hammack 247). Interstate prepares and distributes CX 63 (CX's 63, 77B).

52. CX 67, entitled *The Purpose of My Visit* is a promotional piece used by Vanguard distributors and made available to consumers during in-home sales presentations and contains materials copyrighted between 1973 and 1980 (CX 67; McGee 628). CX 80 is an updated

version of CX 67 (McGee 631) and contains similar material with a few changes. Figgie-Interstate prepares and produces CX 67 and CX 80 and has sold about 4,200 copies to date (CX 136, Interrogatory No. 34).

53. CS 67 and CX 80 contain the following express representations:

[15]

a. The cover page announces the purpose of a salesman's visit to be (CX's 67A, 80A):

To present your family vital life saving information on home fire safety.

To give information on what to do in the event a fire strikes your home.

To show you outstanding products that could benefit you and your family for many years.

b. CX 67D and CX 80E are identical and headlined "Fire Can Happen To You" and state:

Of the nearly 1 million building fires that occurred in 1971, almost seven out of ten occurred in residential occupancies. The chances are that the average family will experience one fire every generation serious enough to have the fire department respond. Residential fires account for about half of all fire deaths and a third of all property losses. (If the losses from non-building fires are excluded, residential fires account for about 87 percent of the deaths and 39 percent of these property losses.)

The right-half of the page is devoted to a graphic percentage comparison of life losses, property losses and number of fires between residential and non-residential fires.

c. CX 67G and CX 80H are identical and headlined "Night Time Is The Danger Time" and feature the following message:

The large percentage of multiple death fires occur between the hours of 11 p.m. and 6 a.m. when most people are asleep. . . .

d. CX 67I and CX 80J are identical and headlined "The National Commission Reports 'HOW TO DIE IN A FIRE' " and lists asphyxiation, attack by superheated air or gases, smoke, toxic products [16] and flames, and concludes "The Real Killer Is Time."

e. CS 67L and CX 80L are identical and headlined "There Is a Solution." These pages then show "recommendations" of the Report of the National Commission on Fire Prevention and Control. One excerpted paragraph reads in part:

The National Fire Protection Association, the Department of Housing and Urban Development, and the International Association of Fire Chiefs, among others, support the use of early warning detectors in homes. . . . At a minimum, most advocates feel, there should be an early-warning detector on the ceiling near each sleeping area in the house. Some believe a system of heat detectors is an adequate substitute, but only if there are many more of them located throughout the house. . . . The commission urges Americans to protect themselves and their families by installing approved early-warning fire detectors and alarms in their homes.

f. CX 67M and CX 80M are identical and purport to present a "Life Safety Plan" recommended by Interstate. The recommended plan consists of:

- Home fire safety education
- Fire escape plan (operation EDITH)
- Home inspections for fire hazards
- An Early Warning System to detect hot fires and smoldering fires in the very early stages.

g. CX 67N and CX 80N contain similar material and both prominently feature a photograph of a Vanguard heat detector. In CX 80N, the textual material is printed below a headline "UNEQUALED RELIABILITY" and reads as follows: [17]

- Limited 25 – year warranty
- Self-contained – no wires or batteries
- High sound warning level
- Multiple temperature rating
  117°–70 ft. space rating
  136°–50 ft. space rating
  175°–50 ft. space rating
- Sealed and permanently lubricated
- Protected against corrosion
- Listed by "UL" of U.S.A., "ULC" of Canada and California State Fire Marshall
- Endorsements by many fire authorities
- Over one thousand testimonial letters from thankful Vanguard owners
- Over four million interstate alarms installed
- A confirmed leader in residential fire detection
- Quality engineering

h. CX 67O and CX 80P both prominently feature a photograph of Vanguard Smokesonic 8-22 AC-DC smoke detector but each employs a slightly different format. CX 80P characterizes the photo electric smoke detector as "the ultimate in SAFETY, QUALITY and DESIGN," and then the product features as follows:

- Two Power Sources for 24 hour protection
- Space age technology
- LED light source (Estimated 40 year life)
- Utilizes solid state components **[18]**
- Will not alarm to gases or to aerosols other than smoke
- Transformer reduces voltage within detector to a safe 9 volts
- Will not false alarm to high air flows
- Fast response to a slow smoldering fire
- Minimum maintenance required
- U.L. listed

i. CX 67P and CX 80Q are identical and are headlined "TYPES OF FIRE PROTECTION – THE CHOICE IS YOURS!" The left half of the page purports to compare the various features of available devices and appears to suggest the best way is a Vanguard mechanical heat detector/smoke detector combination system. The right half of the page is devoted to a photographic presentation of what appears to be a five heat detector/one smoke detector "Vanguard Combination System." This photograph (CX 67Q and CX 80Q) of a five heat detector/one smoke detector configuration appears to be identical to

the full-page photograph on CX 71Z-13, another Interstate promotional piece, discussed hereinafter.

J. CX 67Q is headlined "A Basic Early Warning System for the Average Home" and purports to illustrate, using a vertical diagram (house plan) and a horizontal floor plan, recommended locations where heat detectors and smoke detectors may be installed. The vertical diagram shows one smoke detector in the upper level bedroom and one smoke detector in the top of a stairwell between two lower level bedrooms. The floor plan diagram shows one heat detector in the kitchen, one heat detector in each of the three bedrooms, one heat detector in the utility room, one heat detector in the living room (making up six heat detectors in all) and one smoke detector in the central hallway. The textual material [19] appearing to the left of the diagrams reads:

While full protection calls for adequate heat and smoke detectors in all rooms and in all other enclosed areas where fire can occur, such a system is not always economically possible for the homeowner.

One of the most important factors to consider in a home fire alarm system installation is the location, type, and number of the fire detecting devices.

While it is logical to assume that partial protection can provide some degree of life safety, it should be the goal of every family to protect themselves to the very best of their ability with adequate heat and smoke detection devices.

This page (CX 67Q) was evidently deleted from the updated version, CX 80.

54. CX 68, copyrighted in 1980, is a promotional brochure entitled *Are Smoke Detectors Really Enough Protection From Fire?* CX 68 is used by Vanguard distributors to generate sales leads (McGee 632; Hammack 249). It is prepared and disseminated by Figgie-Interstate and about 2,500 copies have been sold to distributors (Interrogatory No. 34).

55. CX 68B and C appear to answer the question "are smoke detectors really enough protection from fire?" in the negative, by pointing out, in bold types, that "SMOKE MAY NOT REACH THE DETECTOR," "SMOKE DETECTORS ONLY RESPOND TO CERTAIN TYPES OF FIRES," "ELECTRONIC DEVICES ARE SUBJECT TO MALFUNCTION," "POWER SOURCES MAY FAIL," and "SMOKE DETECTORS CAN FAIL WITHOUT NOTICE." The above material is followed by a statement:

Smoke detectors save lives and Vanguard smoke detectors are of the best quality. Yet, people who have depended only on smoke detectors as an early warning device have been injured and died as a result of fire. It is possible that some of the victims may have experienced a false sense of security previous to their fire. [20]

To the lower right of the above-quoted statement appears the following statement printed in a boxed frame:

NO VANGUARD OWNER HAS EVER DIED IN A FIRE AS A RESULT OF A VANGUARD MECHANICAL HEAT DETECTOR PRODUCT FAILURE NO SMOKE DETECTOR CAN MATCH VANGUARD'S LONG TERM RECORD OF DEPENDABILITY (CX 68C).

To the left of the above boxed statement appears the following statement:

A BETTER WAY

Mechanical heat detectors are essential to provide the reliability that smoke detectors lack and to guard against the many types of fires where smoke detectors may be ineffective. VANGUARD distributors support the approach expressed by a top expert in the United States National Bureau of Standards Center for Fire Research. That is: The systematic combination of various types of detectors to maximize chances of fire survival.

VANGUARD has received well over a thousand letters and fire reports from families who might not be alive today if it had not been for VANGUARD mechanical heat detectors. These testimonials clearly indicate that a carefully planned system that includes an adequate number of mechanical heat detectors is a sensible and proven method (CX 68B).

56. CX 69, copyrighted in 1981 and 1983 by Interstate, is a promotional brochure entitled *If You're Serious About Fire Protection, Install Vanguard, The Reliable Combined Fire Protection System.* Figgie-Interstate prepares and distributes CX 69 to Vanguard distributors, who in turn use it during in-home sales presentations (Hammack 250; McGee 638). To date, Interstate has sold 6,000 copies of CX 69 to distributors (Interrogatory No. 34).

a. CX 69A prominently features the now familiar photograph of a five heat detector/one smoke detector combination, **[21]** which also appeared in CX 71Z-13, CX 67P and CX 80Q, discussed hereinabove.

b. CX 69C contains the following statements:

NFPA 74 was revised in 1974. It incorporated in the NFPA Standard the four levels of protection. These depict the importance of incorporating the concept of reliable heat

detectors with an approved smoke detector as a part of the complete system.

1975 – The National Fire Prevention and Control Administration published Highlights of the National Household Fire Survey. It showed the danger areas where solutions must be found.

We feel a practical solution would be to give early warning in areas where most fires start.

Below the above statements appears a graphic presentation showing where household fires start, including such locations as kitchens, bedrooms, basements and bathrooms. A statement printed below the graph reads: "Kitchen fires involving cooking constitute 40% of all household fires. Non-cooking kitchen fires account for another 25% of the total."

The material printed in the right column of CX 69C includes the following statements:

Due to high fire incidents in these areas, there must be provided U.L. approved type heat detectors which will give immediate early warning. The "VANGUARD" 50–FT. rated heat detector will provide reliable, service-free, long-lasting protection in these critical fire areas.

* * *

The "VANGUARD" Thermosonic 50–FT. Heat Detector and the "VANGUARD" Smokesonic Smoke Detector will provide the combination needed to give a greater measure of life safety. This [22] system, when properly installed per the recommendations set forth in the latest edition of NFPA 74, constitutes the finest system on the market today!

c. CX 69D refers to "NFPA Standard No. 74" and gives the Fire Equipment Manufacturers' Association "recommendations":

Since 1967, the National Fire Protection Association Standard No. 74 has required fire detection equipment to warn against fire in the home. The Fire Equipment Manufacturers' Association, Inc. (FEMA) endorses this requirement in general. . . .

Because of the infinite number of variables involved, and because of differences in judgment as to what constitutes "adequate" protection, this question may not be precisely answered. However, general guidelines have been established by FEMA.

The Fire Equipment Manufacturers' Association, Inc. (FEMA) recommends:

1. That one smoke detector be installed to guard each separate sleeping area. (A "separate sleeping area" comprises the hallway and all the bedrooms opening onto that hallway.)

2. That both smoke detectors and self-contained, mechanically powered heat detectors be used in every household fire warning system and that neither type ever be used alone.

* * *

Every fire warning system for homes should include both heat detectors and smoke detectors, properly applied, and located in accordance with their best usage. [23]

57. CX 70, entitled *Highlights of Over One Thousand Vanguard Activations in Real Fire Situations*, is a promotional brochure copyrighted by Interstate in 1981 and 1983. It purports to present in chart form "pertinent information" based on some "1,107 letters about Vanguard

residential fire alarms in real fire situations which occurred between 1959 and 1980" (CX 70A-B). The express statements and graphic presentations contained in CX 70 include the following:

a. In the interest of the life safety of those who depend only on smoke detectors as an early warning device, we feel that the following information as revealed in this brochure should be especially noted:

734 of the reported fires were due to heating, cooking and electrical fires. (Chart A). The figures suggest that these types of fires might be responded to best by heat detectors.

569 of the reported fires started in kitchens, furnance [sic] rooms, garages or attics (Chart B). The National Fire Protection Association publishes. "NFPA No. 74-1980 Standard for the Installation, Maintenance, and Use of Household Fire Warning Equipment" which states. "The installation of smoke detectors in kitchens, attics (finished or unfinished), or in garages is not normally recommended as these locations occasionally experience conditions which may result in improper operation" (CX 70B).

b. We are glad to know that VANGUARD heat detectors installed during the past twenty years, and even earlier, are still protecting people today. We estimate that the number of people VANGUARD has warned of a fire situation could be as much as ten times higher than our testimonial letters indicate. This belief is based on the fact that in 1980 alone we had more than 2,000 requests for replacement fuses for VANGUARD heat detectors. In most instances, when a fuse needs to be replaced, it is usually because a fire **[24]** has occured [sic] and the fuse has activated (CX 70B).

c. Therefore, on the basis of the information in this brochure, we are confident you will agree with Interstate – that for maximum life safety – the VANGUARD combination system of heat and smoke detectors should be in every home. **We think deaths, injuries and property losses related to home fires would decrease dramatically if everyone followed the guidelines in the booklet, "NFPA No. 74 – 1980 Standard for the Installation, Maintenance, and Use of Household Fire Warning Equipment."** The latest edition of this booklet can be purchased at nominal cost from the National Fire Protection Association, Batterymarch Park, Boston, Massachusetts 02269 (CX 70B).

d. CX 70G prominently features in the center of the page a photograph of five heat detector/one smoke detector configuration under a headline caption across the top of the page, which reads:

> IF YOU'RE SERIOUS ABOUT FIRE PROTECTION INSTALL VANGUARD THE RELIABLE COMBINED FIRE DETECTION SYSTEM

CX 70G format is identical to CX 69A. Similar photographs of five heat detector/one smoke detector combination also appear in CX 61H, CX 67P, CX 71Z-13 and CX 80Q.

58. CX 71 is a 42-page booklet used by Vanguard distributors in their sales presentations to consumers. CX 71, copyrighted in 1981, is produced and distributed by Figgie-Interstate (CX 71; Hammack 240; McGee 634). CX 71 was first made available in March of 1982; approximately 100 have been sold to distributors since that date (Hammack 210; Interrogatory No. 34).

59. CX 71 purports to present "the home fire problem," drawing upon authoritative sources of information,

and advises what can be done about it by the use of Vanguard heat detectors and smoke detectors. The source of information is given as: (1) National Fire Protection Association ("NFPA"); (2) U.S. Government sources; (3) Leading fire authorities; and (4) documented incidents (CX 71D). Most of the textual material is printed over photographic montages and paintings depicting [25] leaping flames, a sleeping woman, burning appliances and stairways and a toy-strewn nursery engulfed in flames.

60 CX 71 contains many express representations in textual matter. The following are illustrative:

a. Night Time Is The Danger Time

The large percentage of multiple death fires occur between the hours of 11 p.m. and 6 p.m. [sic] when most people are asleep. . . . (CX 71S).

b. SECONDS CAN COUNT

Once on the loose, within a minute after, a fire can reach 1000 F.

The time span of 2 to 4 minutes, from first flames to deadly conditions is not unusual (CX 71U).

c. IN A HOME FIRE

Bedrooms some distance from the fire can become death traps in 2 minutes.

Two minutes is just about the length of time you would need to rouse your children and get them out of the house. Source: NFPA Bulletin FR 72-2 (CX 71V).

d. The Commission [National Commission on Fire Prevention and Control] urges Americans to protect themselves and their families by installing approved

early warning fire detectors and alarms in their homes (CX 71Z-6).

e. EXPERTS AGREE

The Ideal Residential Fire Detection System Must Meet These Requirements:

One: Sensitivity
Two: Self Contained
Three: Portable
Four: Lifetime of Protection

(CX 71Z-8).

f. CX 71Z-9 is devoted to a large photograph of a heat detector, identified on the top as "Vanguard Thermosonic Heat Detector." Next follows a full-page of textual material, printed in large, bold types, which reads: [26]

UNEQUALED RELIABILITY

- Limited 25-year warranty
- Self-contained – no wires or batteries
- High sound warning level
- Multiple temperature rating
  117° – 70 ft. space rating
  136° – 50 ft. space rating
  175° – 50 ft. space rating
- Sealed and permanently lubricated
- Protected against corrosion
- Listed by "UL" of U.S.A., "ULC" of Canada and California State Fire Marshall
- Endorsements by many fire authorities

- Over one thousand testimonial letters from thankful Vanguard owners
- Over four million interstate alarms installed
- The confirmed leader in residential fire detection
- Quality engineering

g. CX 71Z-10 is devoted to a large photograph of a VANGUARD Smokesonic, designated as 8-22 A.C.-D.C. This page is followed by a full-page textual matter which reads:

Photo Electric Smoke Detector

The ultimate in SAFETY, QUALITY, and DESIGN.

- Two Power Sources for 24 hour protection
- Space age technology [27]
- LED light source (Estimated 40 year life)
- Utilizes solid state components
- Will not alarm to gases or to aerosols other than smoke
- Transformer reduces voltage within detector to a safe 9 volts
- Will not false alarm to high air flows
- Fast response to a slow smoldering fire
- Minimum maintenance required
- U.L. listed (CX 71Z-11).

h. CX 71Z-12 purports to compare different types of fire protection devices, including sprinkler system, electrical heat detectors, battery-operated heat detectors,

ionization-battery-operated smoke detectors, photoelectric 110 volt smoke detectors, mechanical heat detectors, and photoelectric LED/AC-DC smoke detectors, and suggests "the best way" to be "The Vanguard Combination system" of mechanical heat detectors and photoelectric LED/AC-DC smoke detectors. The textual matter for the combination system reads:

THE BEST WAY
The Vanguard Combination System

Mechanical

- Portable
- No maintenance
- No false alarms
- 25 year warranty
- Inexpensive long term cost
- Fast response to hot fires
- Millions installed
- Thousands of lives saved

Photoelectric

L.E.D./A.C.-D.C.

- No false alarms
- Two power sources for 24 hour protection
- Can be installed in most locations
- Light emitting diode has an estimated 40 year life
- Transformer reduces voltage to a safe nine volts
- Energy efficient
- Fastest response to slow smoldering fires [28]

i. The above presentation is followed by a full-page photograph showing a five heat detector/one smoke detector configuration of the combination system, under the caption "THE CHOICE IS YOURS!" (CX 71Z-13).

61. At the conclusion of each sales presentation, Vanguard distributors also use testimonial letters provided to them by Figgie-Interstate in order to persuade the prospective purchaser (CX's 72, 76; Hammack 253; Sterner 1660, 1667).

C. *The Cardboard House Demonstration* (CX 81).

62. During the sales presentation, Vanguard distributors perform a demonstration of how a Vanguard heat detector works. This demonstration involves placing a lit candle inside a cardboard house (CX 81), a piece of tissue serving as the roof of the house, and the heat detector is placed directly on top of the tissue. Within seconds the heat detector alarm is activated while the tissue remains unscorched. Interstate recommends that its distributors perform this demonstration and provides them with the cardboard house and a script that they are told to memorize. Interstate first offered the demonstration house in May 1981. To date, 1,900 have been sold to Vanguard distributors (Interrogatory No. 34; CX 88A, C; Hammack 240, 246).

D. *The Warranty Book* (CX 66)

63. CX 66, entitled *Safe at Home,* is a 23-page warranty book which, at the conclusion of a successful in-home presentation and sale, is left with a Vanguard heat

detector purchaser. It contains Interstate's "fire replacement guarantee" and "limited 25 year warranty," together with various product information regarding Vanguard heat detectors and their installation (CX 66; Hammack 249; McGee 639). Interstate prepares and distributes CX 66 for use by Vanguard distributors. Some 650,000 copies of CX 66 have been sold to distributors (Interrogatory No. 34). CX 66 also contains useful information explaining how to conduct a home fire drill and family member instruction (CX 66S-U), planning fire escape plan (CX 66V) and a convenient "home fire safety check list" (CX 66W). CX 66 also contains the following statements:

a. "Vanguard" is skillfully engineered for highly reliable performance, and you have made a wise decision in selecting this equipment to help protect your loved ones. **[29]**

Fire can strike in countless ways, and there is no way to guarantee against injury or loss in a fire. "Vanguard," together with your Escape Plan and Fire Drills, is intended to help reduce the risk of injury or tragedy!

This booklet is designed to acquaint you with "Vanguard," the reasons for its development, and the Company behind the product. It will suggest sound methods to protect yourself and your family against the dangers of fire and what to do when fire strikes. Never forget that the one who can do the most to protect your family from fire is you! (CX 66E).

b. Interstate developed the "Vanguard Thermosonic" Alarm to help reduce the increasing loss of life and injuries from fire. A reliable, non-electric, non-battery heat detector was needed to warn of danger when fire occurred. Since the greatest loss of life occurs in the

home, the "Vanguard Thermosonic" was designed specifically for the home (CX 66F).

c. There are two extremes of fire to which household fire warning equipment must respond. One is the rapidly developing, high heat fire. The other is the slow, smoldering fire. Either can produce smoke and toxic gases. The "Vanguard Thermosonic" Heat Detector is designed to detect abnormally high temperatures. The "Vanguard Smokesonic" Smoke Detector is designed to detect abnormal quantities of smoke. Every fire warning system for homes should include both heat detectors and smoke detectors, properly applied, and located in accordance with their best usage (CX 66F).

d. CX 66M is devoted to a section entitled "LOCATION AND QUANTITY OF HEAT DETECTORS AND SMOKE DETECTORS" and discusses NFPA Standard 74-1980. The textual material includes a lengthy quotation of NFPA Standard Section 2-1.1.1. Below the quotation appears the following: **[30]**

CAUTION:

The smoke detector(s) required by Section 2-1 of the NFPA 74 Standard will provide only partial protection. While it is logical to assume that the required partial protection can provide a degree of life safety, it should be the goal of every family to provide themselves with the highest level of protection economically possible. You should consider the life safety involved and the level of protection best suited to you and your family's needs.

Additional heat detectors are recommended in the following areas: kitchens, living rooms (dens, family rooms, studies, recreation rooms, etc.), furnace rooms, basements, bathrooms and storage or porch areas, garages, laundry rooms and attics (CX 66M).

CX 66 also contains the following statements:

e. "Vanguard" Heat Detectors at the proper temperature rating may be installed in *any* room (CX 66"O").

f. The 50-foot "Spacing rating" of the "Vanguard Thermosonic" Model V-50 ft. Heat Detector means that Underwriters' Laboratories rates a single V-50 ft. detector as capable of monitoring rooms up to 50 by 50 feet in size for dangerous heat producing first (CX 66P).

g. Of course, the rooms in most homes are much smaller than the 50' by 50' rating of the "Vanguard Thermosonic," but the higher thermal efficiency of the detector is not wasted in these small rooms. Instead, this extra protective range is translated into even faster activation and more time to escape and into more flexibility in the allowable locations for the detectors so that it can still monitor the entire room even when it is not mounted in the center of the room (CX 66Q). **[31]**

64. Interstate recommends to homeowners that heat detectors be installed in all major areas of the home including kitchens, living rooms, dens, family rooms, studies, recreation rooms, furnace rooms, basements, bathrooms, storage rooms, porch areas, garages, laundry rooms and attics (CX's 66M, 135, Admission No. 27).

65. Vanguard distributors are instructed by Figgie-Interstate to have consumers sign a release acknowledging that only "partial fire detection protection" has been purchased if less than the recommended number of heat detectors is ordered (CX 75; Hammack 257).

IV. FIGGIE-INTERSTATE MADE REPRESENTATIONS ALLEGED IN PARAGRAPH FIVE OF THE AMENDED COMPLAINT

A. *Standards For The Determination Of The Meaning of Advertisements*

66. In determining whether a sales presentation and promotional material discussed in Section III hereinabove made a particular representation, the appropriate standard is whether, taking the material individually or as a whole, the representation is a reasonable interpretation of that material. The question is whether the representation at issue is an interpretation of the material to which more than an insubstantial number of reasonable consumers would adhere. Since more often than not several reasonable interpretations of a given material are possible, it is not necessary that the claim found to have been made be the only or the most reasonable interpretation of the material.

67. The primary evidence with respect to the meaning of the promotional materials is the representations contained in those materials, when considered individually or as a whole. The record also contains evidence as to the meaning of the promotional materials in the form of expert testimony provided by Dr. Joel Cohen.

68. In determining the issue of representations, I have primarily relied on my own knowledge and experience to determine what impression or impressions a promotional piece as a whole is likely to convey to a reasonable consumer. When my initial determination agreed with Dr. Cohen's testimony, I rested. When my

initial determination disagreed with Dr. Cohen's testimony, I reexamined the material before reaching a final determination. I have not relied on Dr. Cohen's testimony when, after careful study and reflection, I found it to be unpersuasive and contrary to the weight of evidence. [32]

B. *Expert Testimony Concerning The Meaning Of Vanguard Heat Detector Promotional Material*

69. Joel Cohen, Ph. D., is a professor of marketing and director of the Center for Consumer Research at the University of Florida. He specializes in consumer behavior and impression formation and attitudes (Cohen 270-71). The Center for Consumer Research studies consumer behavior and facilitates research on consumer behavior. It is formally related to both the marketing department and the consumer psychology program at the University (Cohen 272-73). In addition to his work with the Center for Consumer Research, Dr. Cohen teaches undergraduate and graduate courses in consumer behavior, cognitive psychology and consumer information processing (Cohen 274). He has taught in the marketing department at the University of Illinois, developing a consumer behavior curriculum and has been the director of the social and behavioral science division of National Analysts, a major marketing and social science research organization (Cohen 276). In this last position, Dr. Cohen was named vice president of the parent firm, Booz, Allen & Hamilton. In that position, he conducted surveys and studies concerning consumers' interpretation and evaluation of advertising claims for various products, including medications and automobiles (Cohen 277). His area of

specialization, based upon this education, training and experience, is "consumer information processing," the process by which consumers interpret and evaluate the advertising or promotional materials presented to them, and the effect that those materials have upon the consumers (Cohen 278-79). Dr. Cohen has testified previously as an expert in consumer information processing before the Federal Trade Commission, the Senate of the United States, and various state government agencies. He has also written extensively in the area of consumer behavior and consumer information processing, as shown by the articles and studies identified in his *curriculum vitae*, CX 59 (Cohen 279-81).

70. Based upon his background, training, education, experience and study of respondent's sales methods and materials, Dr. Joel Cohen is well-qualified as an expert in the field of consumer behavior and consumer information processing, and he is fully competent to assist the Commission by providing his expert testimony on the meaning and effect of respondent's advertising and promotional representations concerning Vanguard heat detectors. Dr. Cohen's opinions are based upon his application of his expertise to a review and analysis of CX 61 - CX 81 and CX 129 - CX 133 (Cohen 271).

71. Dr. Cohen discussed in detail the Vanguard heat detector promotional material he reviewed and testified that the material he reviewed and discussed contains the representations [33] alleged in Paragraph Five of the amended complaint (*see* Cohen 302-09, 381-83, 390-428, 442-43).

72. It is also Dr. Cohen's view that the promotional materials he reviewed "all contribute to the very clear net impression that is alleged in Paragraphs 5(1) and 5(2)" of the amended complaint and further that to conduct a study designed to determine whether the promotional materials he reviewed do in fact convey the alleged claims to consumers "would be a waste of taxpayer's money" because "the record is very clear" and such a study is not needed (Cohen 430-31).

73. On cross-examination, Dr. Cohen also agreed that:

a. Respondent did not represent that heat detectors will provide the necessary warning to all occupants of a house no matter where the detectors are installed (Cohen 446) or where the occupants are located (Cohen 447) or where the fire occurs (Cohen 452) or what type of fire occurs (Cohen 452) or under all circumstances (Cohen 452).

b. Respondent did not represent that installation of a single heat detector anywhere in a house will ensure that all occupants of the house will be given the necessary warning to escape safely (Cohen 443-47).

c. Respondent did not represent that in the event of most fires heat detectors alone will provide the necessary warning to occupants to allow them to escape safely under all circumstances nor is it likely that a consumer would derive such an impression from the sales material (Cohen 457-58).

d. Respondent did not represent that its heat detectors will perform equally well no matter where they are placed (Cohen 446). [34]

C. *Vanguard Heat Detector Promotional Material Containing Representations Alleged In The Amended Complaint*

74. The representation alleged in Paragraph 5(1) of the amended complaint that "in the event of most fires, respondent's heat detectors provide the necessary warning to occupants to allow them to escape safely" is made directly or by implication in the following promotional material:

a. The old and new slide presentations (CX's 129-33; Tr. 1586-1604), discussed in F. 36-40, *supra;*

b. CX 61, *Disneyland Hotel,* a promotional brochure discussed in F. 41-49, *supra;*

c. CX 63, *News Bulletin,* a promotional piece discussed in F. 50, *supra;*

d. CX 67 and CX 80, *The Purpose of My Visit,* promotional pieces discussed in F. 52-53, *supra;*

e. CX 68, *Are Smoke Detectors Really Enough Protection From Fire?* a promotional piece discussed in F. 54-55, *supra;*

f. CX 69, *If You're Serious About Fire Protection,* a promotional piece discussed in F. 56, *supra;*

g. CX 70, *Highlights of Over One Thousand Vanguard Activations in Real Fire Situations,* a promotional piece discussed in F.57, *supra;*

h. CX 71, a promotional booklet, discussed in F. 58-60, *supra;*

i. The Cardboard House (CX 81) demonstration, discussed in F.62, *supra;* and

j. The warranty book (CX 66), discussed in F. 63, *supra.*

75. In CX 61 (*Disneyland Hotel*) and the Cardboard House demonstration (CX 80), the single message that is conveyed to the consumer is that Vanguard heat detectors are dependable fire protection devices and will give early fire warning for a safe escape in most residential fires. [35]

76. In the other promotional and the so-called warranty book (CX 66) referred to in F. 63, *supra*, the claim that Vanguard heat detectors are dependable fire warning devices that have saved many lives is made, along with a companion claim that the Vanguard combination system provides increased fire protection. The degree of emphasis placed upon the effectiveness of Vanguard heat detectors vis-a-vis smoke detectors varies from one promotional piece to the next. However, there can be no disputing that every one of them clearly conveys the effectiveness claim for Vanguard heat detectors alleged in Paragraph 5(1) of the amended complaint.

77. Another way the effectiveness claim alleged in Paragraph 5(1) of the amended complaint is made in the photograph of five heat detector/one smoke detector configuration so prominently featured in a number of promotional pieces, including CX's 61H, 67P, 69A, 71Z-13, and 80Q. A picture speaks a thousand words. Any reasonable consumer viewing these photographs will come away with the message that Vanguard heat detectors are effective residential fire warning devices and should be the core of any residential fire protection system.

78. Virtually all of the promotional materials discussed hereinabove, with the exclusion of CX 61 *Disneyland Hotel* and the Cardboard House demonstration (CX

80), contain express and implied claimed that the combination system combining Vanguard heat and smoke detectors significantly increase the level of fire warning protection than smoke detectors alone, as alleged in Paragraph 5(2) of the amended complaint.

79. Some pieces are entirely devoted to conveying this single message to the consumer. They include CX 68, *Are Smoke Detectors Really Enough Protection From Fire?*, discussed in F. 54-55, *supra* and CX 69, *If You're Serious About Fire Protection, Install Vanguard The Reliable Combined Fire Protection System.* Indeed, respondent's dispute with this complaint allegation is indefensible.

80. In addition, CX 66 and CX 69 also contain express and implied statements and material which tend to confuse and mislead reasonable consumers as to what the standard-setting bodies in the field of fire protection and fire alarm devices had to say about the simple or comparative effectiveness of heat detectors and smoke detectors.

81. For example, CX 66M (warranty book) discussed in F. 63(d), *supra,* confuses and misleads readers into believing that the message which follows the subheading "CAUTION" is a continuation of Section 2-1 of the NFPA, when in fact the cautionary portion in the text is not a statement made by NFPA or contained in NFPA 74-1980, but rather Interstate's own. **[36]**

82. CX 69D, discussed in F. 56(c), *supra,* refers to and discusses NFPA Standard No. 74 in such a way as to leave the reader with a distinct impression that a standard setting body named the National Fire Protection

Association regards both smoke detectors and heat detector [sic] equally effective when in fact both the 1978 and 1980 versions of current Standard 74 made installation of smoke detectors in certain areas of a household *mandatory* while at the same time making installation of *additional* heat detectors *optional* along with installation of additional smoke detectors.

83. It is only fair to point out here that the bulk of the Vanguard heat detector promotional material discussed hereinabove also contains, in addition to the claims alleged in the amended complaint, useful information which will make the consumer more aware of the real danger of residential fires and think about the need for appropriate fire protection measures, including installation of dependable early fire warning devices.

84. The fact that the promotional materials are presented to the consumer through in-home sales presentations by a salesman heightens the impact of the materials because the captive consumer's attention is focused for the duration of the sales presentation (Cohen 572).

85. The effectiveness of Figgie-Interstate's promotional materials in convincing consumers that heat detectors provide the necessary warning and to increase significantly the level of fire protection than smoke detectors alone is demonstrated by the fact that Vanguard purchasers buy between four and five heat detectors for every one smoke detector (F. 18 *supra;* CX's 125, 127).

V. THE RESIDENTIAL FIRE PROBLEM AND FIRE WARNING DEVICES – THE NEW LEARNING

A. *The Expert Witnesses*

86. Burton A. Clark, called by complaint counsel, is a teacher at the National Fire Academy of the Federal Emergency Management Agency (FEMA). Mr. Clark has been in the fire service for over 14 years, as a fire fighter, consultant on fire safety and teacher and has created educational programs on residential fire protection equipment (Clark 652-56). In 1978, the National Fire Academy invited him to join its teaching staff, where he has since taught a national course in fire detection devices (Clark 657). Mr. Clark is a member of the National Fire Protection Association (NFPA) and the International Society of Fire Service Instructors, and has published a paper in the *Fire Engineering Journal*, entitled "Systems Analysis of Early Warning Residential Fire Detection Concepts" (Clark 660-61). He participated in the California Fire Chiefs Association Fire Detector Texts, helping to develop the tests and the data [37] collection and observation methods (Clark 664). Based upon his training and experience with fires and fire detection devices, Mr. Clark is qualified as an expert in the field of fire science.

87. Richard W. Bukowski, called by complaint counsel, is a research engineer at the National Bureau of Standards ("NBS"). Since 1975, Mr. Bukowski has been involved in the NBS testing and research on fire protection devices, fire alarm systems, flammability characteristics of building contents, and the behavior of fire as it spreads throughout a building (Bukowski 950-51). Mr.

Bukowski is a licensed professional engineer and member of the National Fire Protection Association (NFPA) and also a member of both the NFPA committee which creates and reviews standards for fire detection devices for commercial building and of the NFPA committee on household fire detection equipment, which sets standards for the installation and use of fire detectors and fire detection equipment in homes known as the "NFPA Standard 74" (Bukowski 952-53). He had been a project engineer at Underwriters' Laboratories, where he had the primary responsibility for testing fire detection devices, including the Vanguard heat detector, for compliance with Underwriters' Laboratories standards (Bukowski 1025). Mr. Bukowski also worked on Underwriters' Laboratories Standard 539, for single station, mechanically-powered, heat detectors, such as those manufactured by Figgie-Interstate (Bukowski 947). In recent years, Mr. Bukowski has been involved in the development and evaluation of tests of fire detection systems aboard the NASA space shuttle and is currently working with the Houston Manned Space Flight Center on a fire detection system for the NASA space station. He has also worked with the Smithsonian Institution on fire detection systems and has been consulted by the Secret Service regarding the fire protection system in the White House (Bukowski 957).

88. Mr. Bukowski was involved in the deliberations of the NFPA committee related to the 1978 revision of NFPA 74 which became NFPA 74-80. He is familiar with residential fire tests conducted in this country in recent years and is particularly knowledgeable with the Indiana Duns Test I and II, discussed hereinafter. He was instrumental in designing the Indiana Tests and assisted in the

conduct of these tests (Bukowski 952-53, 966-70; CX 23B-C).

89. Based upon his background, training, education and experience, Mr. Bukowski is well-qualified as an expert on the behavior of fire and the effectiveness of household fire warning equipment including heat detectors.

90. Wayne M. Martin, called by complaint counsel, is a fire protection engineer, currently with the fire department of the city of Los Angeles. During the past ten years, he has been responsible for the research unit in the fire department's Fire Prevention Bureau, as well as for the fire inspection of the San Fernando Valley portion of the city of Los Angeles. Mr. Martin [38] is a licensed professional engineer, both in civil engineering and in fire protection engineering, and a member of the California Fire Chiefs' Association and of the California State Association of Fire Educators. He teaches "Building Construction for Fire Protection" and "Fire Protection Equipment and Systems" at Los Angeles Valley College and at U.C.L.A., and a course called "Life Safety Factors" at U.C.L.A. He has also taught at the National Fire Academy, covering topics including smoke detectors and life safety checking of building plans (Martin 737-53). Mr. Martin was the site engineer for the California Fire Chiefs' Association Fire Detector Tests ("Cal Chiefs' Tests"), discussed hereinafter. Based upon his education, training and experience, Mr. Martin is qualified as an expert in the field of fire science.

91. John E. Lee, called by respondent, is a retired fire-chief now working in a public relations function for

Figgie-Interstate. Until he retired at the end of 1982, he had been Chief of the Charlotte Fire Department, Charlotte, North Carolina for over 11 years (Lee 1522-23, 1539-40). During his pre-retirement years, Mr. Lee was active in the International Association of Fire Chiefs ("IAFC") as a division president, and a board member and served as IAFC's International President, 1980-1981. Mr. Lee also served for five years as Chief of Oak Ridge Fire Department, Oak Ridge, Tennessee, as chief of training of the St. Petersburg, Florida Fire Department and as a fire fighter, company officer and training officer in the North Miami, Florida Fire Department (Lee 1523-24). Based on his professional training and experience in the municipal fire protection field, Mr. Lee is qualified as an expert on household fire warning devices. However, he indicated that he has read the fire tests discussed hereinafter but he was not an engineer and not familiar with the technical details regarding their methodology (Lee 1537-39).

92. John Patrick Ward, called by respondent, is currently Commissioner of Public Health and Safety in Springfield, Illinois, a position he has held for over nine years. He has served as Fire Chief at Fort Leonard Wood, Missouri, and as Director of Public Safety, State Colleges and Universities of Illinois. At various times, he was also Project Director for the U.S. Department of Commerce Fire Protection Master Plan, a technical service specialist at the National Fire Prevention Control Administration, project director for the development of a national arson training program, and served on several committees at the National Fire Academy. Mr. Ward also served as a fire

protection consultant to local, state and federal government agencies and private manufacturing firms. Mr. Ward is also experienced in the installation and operation of fire protection systems, including sprinkler and early warning systems, and has been involved in various committees in research projects around the country, including the San Francisco Sprinkler Test (Lee 1696-1701). Based on his training and experience, Mr. Ward is [**39**] qualified as an expert in the field of fire protection and related systems and devices.

B. *The Residential Fire Problem*

93. About three million fires were reported in 1981 in the United States, causing over 30,000 civilian injuries, 7,500 deaths and some $6.5 billion in property losses. Although residential fires accounted for only 25% of all reported fires, they claimed 80% of fire deaths, 65% of fire injuries and 46% of property losses from fire. Thus, residential fires represent the largest threat to life and safety (Clark 669-70; CX 28J-L).

94. In terms of causes of residential fires, smoking led the death list with 27% although it accounted for only 8% of such fires, while heating and cooking combined, accounting for over 40% of residential fires, caused 17% of residential fire deaths (Clark 673; CX 28L). Thus, smoking is by far the leading cause of residential fire deaths in the United States.

95. And most fire deaths occur at night during the sleeping hours when residents may not become aware of

the fire until it becomes too late for a safe escape (Lark 675; CX 23)).

96. The 1973 Report of the National Commission on Fire Prevention and Control, entitled *America Burning*, also called attention to what it calls "the living victims" of fire (CX 29, p. 11, also quoted in CX 71I):

Fire kills. But fire has its *living* victims too: those who grieve the loss of loved ones killed by fire. . . . those who are left homeless or jobless or impoverished because of fire. The victims most poignant to consider are those maimed and disfigured by burn injuries. About half of these victims are children. . . .

Among the illnesses and injuries that require long hospitalization, few are as traumatic as sever burns.

* * *

The average hospital stay for a burn victim is over three times that of medical and surgical patients. An individual's hospital stay and later treatment can add up to $60,000 or more. . . . **[40]**

97. Fire resulting in deaths typically originate in living rooms or bedrooms (Clark 675). They do not typically originate in kitchens or furnace rooms. A study conducted by the National Fire Protection Association indicates that living rooms and bedrooms are the point of origin in 67% of all "fatal" fires (RX 14, p. 23).

98. The most likely victims of fire are the very young (ten years of age and under), the old (65 and over) and the inform (Clark 670). This is explained in part by the fact that these groups are the least capable of taking care of themselves and therefore need more time to escape (Clark 670-71).

99. The majority of fires resulting in fatalities are started by smoking materials dropped on upholstered furniture or bedding. These types of fires typically smolder for long periods of time and generate toxic gases and large quantities of smoke without significant heat buildup (Clark 674; Martin 830).

100. The 1973 Report of the National Commission on Fire Prevention and Control listed the five ways in which fire can kill in declining importance and had this to say (CX 29, pp. 62-63, also quoted in CX 71H):

a. *Asphyxiation.* Fire consumes oxygen from the surrounding atmosphere, thus reducing its concentration. If the oxygen concentration falls below 17 percent, thinking may be an effort and coordination difficult. Below 16 percent, attempts to escape may be ineffective or irrational, wasting vital seconds. With further drops, a person losses his muscular coordination for skilled movements, and muscular effort leads rapidly to fatigue. His breathing ceases when the oxygen content falls below 6 percent. At normal temperatures, he would be dead in 6 to 8 minutes.

b. *Attack by superheated air or gases.* With temperatures above 300° F., loss of consciousness or death can occur within several minutes. In addition, hot smoke with a high moisture content is a special danger since it destroys tissues deep in the lungs by burning.

c. *Smoke.* Inhalation of smoke – or, more correctly, of the products of incomplete combustion – kills people who suffer no skin burns at all. In addition to carrying toxic products, such as carbon monoxide and hydrogen [**41**] cyanide, thick smoke may be laden with organic irritants, such as acetic acid and formaldehyde. In the early stages

of a fire, the irritants, which attach the mucous membranes of the respiratory tract, are often the more important danger. Smoke often blocks the visibility of exits.

d. *Toxic products.* Many toxic components of smoke are responsible for the damage done – including oxides of nitrogen, aldehydes, hydrogen cyanide, sulfur dioxide, and ammonia, to make only a few. There is ample evidence that the hazard of two or more toxic gases is greater than the sum of the hazards of each. Moreover, low oxygen and high temperatures increase the toxic effects. In addition to toxic gases that attack the lungs, there are irritants that attack the eyes with blinding effect, preventing escape. Some fire gases dull the senses of the victim or his awareness of injury.

e. *Flames.* Since the aforementioned factors can debilitate, confuse, blind, or kill without warning, the person who goes to sleep confident that advancing flames will provide sufficient warning for escape may be taking a fatal gamble.

Also see Martin 816-26.

101. Detectable quantities of smoke precede detectable levels of heat and the development of hazardous conditions in nearly all residential fires (CX's 1Z-18, 23K; Lee 1539; Martin 875; Bukowski 1013).

102. Hazardous levels of heat, smoke and toxic gases can occur within several minutes of fire ignition (Clark 697; CX's 66F, 71V, 133).

103. The most common cause of fire-related death is carbon monoxide poisoning (Clark 676). Carbon monoxide is a by-product of nearly all fires and can reach lethal levels without significant heat build-up (Clark 674, 677).

104. During sleeping hours most of the residential fire deaths are attributable to smoke in combination with gases. Most bodies are found with no burns on them. Thus shows that most of residential fire deaths are caused by smoldering fires and not by a flaming ignition (Martin 829-30). **[42]**

105. The purpose of a fire detection device is to warn occupants of the existence of a fire in time to allow a safe escape through normal means of egress prior to the onset of hazardous conditions (Clark 677; Bukowski 973; CX 1G).

106. Fire scientists define "escape time" as the time lapse between detector alarm activation and the reaching of hazardous levels or "tenability limits," of heat, smoke or toxic gases within the room (Martin 815-17; CX 1G).

107. There is no unanimity among experts regarding precisely where tenability limits should be set for heat, smoke obscuration and carbon monoxide levels. The National Bureau of Standards has been engaged in ongoing research in this area (Bukowski 1224). These levels cannot be set scientifically without taking into account many physiological factors beyond the expertise of engineers (Bukowski 1124, 1223). The tenability limits will no doubt be further refined as a better understanding of their chemical and physical nature as well as their physiological effects provide a surer foundation of knowledge for improved methodology in residential fire tests.

108. In recent years, in a series of residential fire tests discussed hereinafter, a broad consensus has emerged regarding the realistic tenability limits, largely

reflecting the current knowledge available to fire science and the judgment of fire experts based on experience.

109. In these fire tests involving household fire warning devices, the tenability limits for heat were set at or near 150° F.; for smoke obscuration, between 10% and 11%; and for carbon monoxide, between 400 and 1,000 per million (F. 127-32, 142, *infra*). However, it has been conceded that carbon monoxide level of 400 per million (used in the Dunes I) was too low (F. 132, *infra*).

1. UL Listing Of Heat Detectors Does Not Assure Their Capability To Provide Adequate Escape Time In Real Fire Situations

110. Underwriters' Laboratories ("UL") is a non-profit organization whose purpose is to maintain and operate laboratories for the examination and testing of devices, systems and materials (RX 13, p. 2). UL also establishes performance standards against which various products are tested. When a device meets the applicable standard it receives a UL listing, signifying that the product has been tested by UL and satisfied UL's standard requirements (Bukowski 1021-22). **[43]**

111. Vanguard heat detectors have been tested and listed by UL. However, UL tests are not intended to demonstrate the effectiveness of any detection device under real fire conditions (Bukowski 1029). There are three principal tests for heat detectors: the water bath test, the oven test and the fire test (Bukowski 1023).

112. The water bath test consists of immersing a heat detector in water, the temperature of which is

increased at a rate of 1° F. per minute. The water temperature is recorded at the time of alarm activation. This test is designed only to determine whether the fuse element of the detector will melt when it reaches its stated temperature (Bukowski 1023).

113. The oven test consists of placing a heat detector in a circulating air oven, the temperature of which is increased from 80° F. to 240° F. over a four-minute period. The time and temperature are recorded at the instant the heat detector goes into alarm (RX 13, p. 8). Oven test results show that the Vanguard 136° heat detectors do not activate until oven temperature reaches 185° to 200° (Bukowski 1025).

114. The oven test results are a clear demonstration of the principle of thermal lag (Bukowski 1024). "Thermal lag" refers to the time lag before the fuse of a heat detector absorbs sufficient heat from the surrounding air to activate. Thus, in the event of a fire, a 136° heat detector will not activate when ambient temperature reaches 136° but will activate at some later time when the fuse itself reaches 136°. During this interim period, a developing fire will have raised ambient temperature well in excess of the heat detector's stated activation temperature. The faster a fire develops, the greater the thermal lag will become (Bukowski 978).

115. All heat detectors, including Vanguard, are subject to thermal lag (CX 135, Admission No. 21). For this reason, UL requires that each heat detector be marked with the following statement:

Operation – Responds to a heat producing fire only. Unit will activate when the temperature of the surrounding air

reaches the marked temperature rating (plus or minus a few degrees) provided the air temperature increase is 1° F. (0.6° C.) per minute or less. At faster rates of temperature rise, the surrounding air temperature at which the unit will activate will be above the marked rating, the temperature differential depending on the rate of rise of temperature produced by a fire. This temperature differential results from the time lag before the temperature element absorbs the [44] necessary heat from the surrounding air to activate. This notice is placed on the back of the heat detector (RX 13, p. 17).

116. Thermal lag is one reason why heat detectors cannot provide immediate early warning (Bukowski 1038). Since residential fires can jump as much as 750 degrees in 10 seconds (that is, 70 degrees per second), thermal lag is a serious problem (Martin 820, 931).

117. In UL's fire test, two large pans of alcohol, with a total surface of 18 square feet, are ignited. The heat release rate of this fire is equivalent to that generated by 24 home furnaces operating simultaneously. In UL fire test, the heat detectors which are located no more than 35 feet from a point directly over the fire, activated in two minutes or less. Air temperature at the time of activation was not measured. The amount of heat generated in UL's fire test is not likely to be duplicated in any but the final stages of a residential fire (Bukowski 1027-29).

118. Therefore, no conclusions can be drawn about heat detector performance under actual fire conditions from UL tests or from the fact that Vanguard heat detectors are UL listed (Bukowski 1035), except that thermal lag causes delayed detector activation.

119. Similar concerns were reflected in the 1973 National Commission Report excerpts of testimony given to the Commission by William J. Christian, consulting engineer, United Laboratories, Inc., on the subject of fire detectors, which stated in part (CX 29, p. 121):

a. Three types of fire detectors are most commonly used in this country. These are known by the generic terms as heat detectors, smoke detectors, and flame detectors. Only heat and smoke detectors appear to have application to the household fire detection system. . . .

b. In the late 1950's, self-contained non-electrical fire alarm units were being sold door-to-door. A unit of this type consisted of a heat detector . . . Because these units respond only to a temperature rise, they are intended for use in areas where a fire producing a great deal of heat is likely to occur, such as near a furnace, but they have also [**45**] been employed throughout other rooms in a home. . . .

c. In order to be of value in providing life safety, a fire detection system must make provision for detecting a small smoldering fire soon enough that alarm can be given and the building evacuated before untenable smoke conditions are reached. In addition, but of less relative importance, the fire detection system ought to be capable of early detection of rapidly developing hot fires.

d. Smoke detectors of the photoelectric and ionization types provide means for detecting smoke from either type of fire. . . . Heat detectors, on the other hand, provide early warning of hot fires in their immediate area only. . . .

120. The National Fire Protection Association (NFPA) is an independent, non-profit organization which operates by way of numerous volunteer committees composed of experts from all corners of the fire protection

field, including engineers and fire detection equipment manufacturers. The Association serves as a clearinghouse for fire protection information and establishes various standards that are used as model codes for adoption by state and local governments. Standard 74 relates to the location and type of fire detection devices to be installed in a residence (Bukowski 952; CX 23).

121. In 1966, the NFPA tentatively adopted a new draft NFPA 74. Following extensive discussion of the 1966 draft, NFPA 74 was revised several times, most recently in 1978. The 1978 edition was approved by the American National Standards Institute as an American National Standard. The 1980 edition of NFPA 74 (CX 23) was adopted and released in the late months of 1980. Public authorities are urged by the NFPA to adopt this document by reference into laws, ordinances and regulations (CX 23B).

2. The Indiana Dunes Tests

122. The Indiana Dunes Tests were conceived as a result of proposed amendments to the National Fire Protection Association's Standard 74 raised at its 1974 annual meeting (Bukowski 964-65). These amendments involved a departure from the earlier standard, which mandated a heat or smoke detector in every room of the home. The amendment as adopted in 1974 established four levels of protection, varying from each other in terms of the [46] number and type of detection devices required. The minimum level consisted of smoke detectors alone in the vicinity of bedrooms and on every other level of the home. To address the concerns of some fire marshalls

who felt that a detector in every room was necessary for adequate fire protection in homes, the Indiana Dunes test was conceived (Bukowski 964-66).

123. The Indiana Dunes Tests were designed and conducted through the joint efforts of the National Bureau of Standards and Underwriters' Laboratories (Bukowski 968). The tests were conducted in actual homes and the kinds of fires set were determined by NFPA statistics illustrating typical residential fire scenarios (Bukowski 969). In keeping with national statistics, 60% of the fires involved smoldering ignitions, such as cigarettes dropped on upholstered furniture, and 40% of the test fires involved flaming ignitions (Bukowski 969-70). The homes were extensively instrumented with measuring devices for such factors as heat, smoke and carbon monoxide. The instrumentation was located in the room of fire origin and at strategic locations along the "primary escape paths" within the home, that is, hallways and stairwells leading to the outside (Bukowski 971).

124. In the first series of tests, Dunes I, smoke detectors of varying sensitivity available on the market were tested along with rate-of-rise heat detectors. Thermocouples, a heat measuring device, were used to simulate the performance of a fixed-temperature heat detector, such as the Vanguard (Bukowski 973-74, 1136). A thermocouple provides a continuous read-out of surrounding temperature. It functions in the same way as a fixed-temperature heat detector, so that when the thermocouples registered 136°, heat detector activation was presumed. Because thermocouples are subject to virtually no thermal lag, however, their response time to fire is faster

than that of an actual fixed-temperature fuse heat detector (Bukowski 977-78).

125. All the various detection devises were mounted side by side and placed in the rooms of fire origin and in the hallways on each level of the home (Bukowski 982-83).

126. After the fires were set, all detection devices were monitored for time of activation after ignition. Performance of each detector was evaluated based upon the amount of escape time provided between activation and the onset of hazardous conditions which would impede or prevent escape (Bukowski 987).

127. There is substantial agreement among fire science experts that a temperature of 150° F. measured at a level five feet from the floor constitutes an untenable environmental condition which will seriously impede successful escape (Bukowski 985; Clark 684; Martin 819; CX 135, Admission No. 31; RX 16, p. 97). According to Mr. Bukowski, human tolerance to temperature is in part a function of the relative humidity of the air and the level of exertion of that person. Under very dry [47] conditions when the evaporative cooling system of a human works most efficiently, the absolute upper limit of heat tolerance would be 212° F. Mr. Bukowski testified that assuming average humidity and a high level of exertion as would be found in an individual escaping a fire, 150° is a reasonable tenability limit (Bukowski 993-94). However, in a later sprinkler test in which Mr. Bukowski was involved, the assumed safe level of temperature was 200° (Bukowski 910, 937).

128. According to Mr. Martin, 150° represents the temperature at which most fires will experience accelerated growth leading to considerably higher temperature within short periods of time. For example, instances have been reported in which ambient temperature has climbed from 150° to 700° in ten seconds (Martin 820, 931).

129. In any event, 150° was chosen as the heat tenability limit for the Dunes test. If a detector failed to activate in advance of 150°, it was concluded that the device provided no escape time (Bukowski 985).

130. Smoke buildup also constitutes a potentially hazardous environmental condition, the effect of which can impede safe escape. Smoke can induce panic and disorientation in addition to causing eye, skin and lung irritation and impeded respiration (Clark 679-80). Reliable technical literature indicates that smoke obscuration of 7% to 15% per foot effectively blocks escape routes (100% smoke obscuration per foot equals no light transmission through one foot of smoke) (Bukowski 1000; Clark 682). The 7% figure is generally accepted in the literature as appropriate where the people must travel long distances through unfamiliar surroundings to escape; the 15% per foot figure is appropriate where people have shorter distances to travel in familiar surroundings, such as their own homes (Bukowski 1000). Expert testimony indicates that, at the "midway" point of 11% obscuration, a person could not distinguish a male from a female standing only 15 feet away (Martin 824).

131. In one reliable study involving human subjects and smoke obscuration levels, it was determined that a completely blindfolded person suffering from none of the

side effects of smoke could exit a building faster than those who were exposed to smoke obscuration of 15% (Bukowski 1001). Smoke obviously does more than merely impair vision. Mr. Bukowski chose 15% smoke obscuration as the tenability limit for the Dunes test. If a detector failed to alarm in advance of 15% smoke obscuration, it was concluded that such a device provided no time for escape (Bukowski 985).

132. There is a substantial agreement among fire science experts that exposure to carbon monoxide in a concentration of between 800 to 1,000 parts per million for a period of 30 minutes will seriously impede a safe escape (Martin 821-22; Bukowski 1003-04; Clark 678-79). The tenability limits of 400 parts per [48] million for carbon monoxide chosen for the Dunes test was thus too low. However, this tenability limit did not affect the results of the Dunes test because the smoke tenability was reached first in every test (Bukowski 1004-05).

133. The results of the Dunes I tests indicate that in the 37 tests conducted a heat detector was never the first device to be activated (Bukowski 986). In 14 of the 37 tests no heat detector alarmed at any time (Bukowski 986). The average escape time provided by heat detectors for all 37 tests was a negative 2.2 minutes, which means that heat detectors failed to alarm until 2.2 minutes *after* a tenability limit had been exceeded (Bukowski 987). The corresponding escape time provided by smoke detectors was a positive 18.6 minutes (Bukowski 988).

134. An analysis of the Dunes I data indicates that smoke detectors located on every level of the home provided at least three minutes warning in 89% of the

experiments. And, the addition of fixed temperature heat detectors in every room of the home, along with the every-level smoke detectors, provided no increase in escape time (Bukowski 988-89).

135. Dunes II, conducted in the fall of 1975 through the summer of 1976, employed methodology similar to that of Dunes I, except that actual heat detectors, including Vanguards, were used in lieu of thermocouples (Bukowski 990). This change was made in response to criticism from Edward Gallagher, Figgie-Interstate's chief engineer, who reviewed and criticized Dunes I. Mr. Gallagher believed that Figgie's heat detectors would perform better than the thermocouple devices (Bukowski 991-92). However, the performance of the actual heat detectors, subject to thermal lag, was considerably slower than that of the thermocouples used in Dunes I. Not one of the heat detectors tested provided 3-minute escape time in any one of the 22 tests in Dunes II (Bukowski 991).

136. The Dunes test results reviewed hereinabove are consistent with the results of similar fire tests conducted over the years (Bukowski 1005-06).

137. The California Fire Chiefs' Association Residential Fire Detector Test Program, also known as the "Cal Chiefs' Tests," were conducted by the Los Angeles City Fire Department in 1978 (Martin 754). The executive summary of this report is included in the record as CX 1A through CX 1Z-19. The objective of this study was to investigate and report on the amount of escape time afforded by various fire detection devices under actual residential fire conditions (CX 1C). **[49]**

138. The test was sponsored by the fire service and manufacturers of various kinds of detectors (Martin 757-58). Figgie-Interstate donated both funds and Vanguard heat detectors to aid in the conduct of the tests (CX 135, Admission No. 35; Martin 759). Edward Gallagher, then Chief Engineer for the Interstate Engineering division of Figgie, performed a major role in planning test procedures (Martin 759).

139. The test houses were typical one- and two-story homes and were completely furnished. As in the Dunes tests, instrumentation was installed to monitor heat, smoke obscuration and carbon monoxide. In both test homes, panels of eight detectors each were mounted in the living rooms, bedrooms, kitchens, attics, heater rooms and hallways. Each panel consisted of three ionization smoke detectors, three photoelectric smoke detectors and two 136° fixed-temperature heat detectors (CX 1D-E). Every detector panel in every test included a Vanguard Heat detector (Martin 818).

140. Eleven test scenarios were developed based upon a statistical survey entitled "California Fire Incident and Reporting System" prepared by the California State Fire Marshall. The scenarios chosen represented typical fatal residential fires of both the flaming and smoldering type (CX 1E). Each scenario was repeated a number of times in each house under varying conditions, *i.e.*, bedrooms [sic] doors and windows open or closed, furnace on or off. Although the original test design involved only typical fatal fire scenarios, Edward Gallagher of Figgie, insisted that more flaming type kitchen fires be included in the test. Despite the fact that a relatively small number of fatalities are caused by kitchen fires the design was

revised to include 24 kitchen fires in 71 tests (Martin 762-63).

141. As the test fires were ignited, the activation time of each detector was monitored. Evaluation of detector performance was based upon the amount of time provided between detector activation and the onset of any one of the tenability limits (Martin 815).

142. Consistent with the Dunes tests and the opinion of fire researchers, the California tests employed 150° F. as the tenability limit for heat (Martin 819). The tenability limit chosen for carbon monoxide concentration was 1,000 parts per million. Based on available scientific literature, exposure to this level of carbon monoxide for a period of 30 minutes may render the victim unable to walk (Martin 821-22). The tenability limit chosen for smoke obscuration was 11% per foot. At 11% smoke obscuration, it is difficult to perceive the outline of a doorway only 15 feet away (Martin 824).

143. Although the Dunes tests used a smoke obscuration limit of 15% per foot and California 11%, the results of the two tests are similar. This is understandable because the time [50] difference between reaching 11% obscuration and 15% obscuration was under a minute in most cases (Bukowski 1002-03).

144. At the conclusion of the 71 test fires in the Cal Chiefs' tests, data analysis was performed under a contract between the International Association of Fire Chiefs' Foundation and California State University, Los Angeles. The staff at California State University then prepared a report in 1979 that was distributed in draft form (Martin 775).

145. Richard Bukowski of the National Bureau of Standards reviewed the 1979 draft report and identified some instances in which transposition errors in the labeling of data points had occurred. Uncertain as to the qualitative effects of the transposition errors, NBS recommended that the report not be published in that form (Bukowski 1008). Wayne Martin, the on-site project coordinator for the California tests (Martin 739), and other members of the Los Angeles Fire Department Research Unit undertook to verify the accuracy of the California State report and to make corrections where necessary (Martin 775, 783). After a review of the actual charts generated by recording instruments during the test fires and the audio tapes made for each test fire, the Los Angeles Fire Department was able to correct the instances of transposition errors contained in the 1979 draft (Martin 774, 777). A final report incorporating the corrections (CX1) was prepared in 1983 (Martin 792). The 1983 report has been reviewed by Mr. Bukowski against his prior critique and comments, and he has found it to incorporate all the necessary corrections (Bukowski 1008).

146. CX1 accurately summarizes the results of the California Fire Chiefs' Tests (Martin 803) and is considered to be a reliable authority by fire experts (Clark 700; Bukowski 1010). The National Fire Protection Association (NFPA) has recently expressed an interest in publishing the report (Martin 806).

147. The California tests indicate that the escape time provided by smoke detectors for both smoldering and flaming fires ranged between two to six minutes in advance of the onset of any hazardous condition or "tenability limit" (Martin 815). In only 8% of all test fires did

a heat detector activate before a tenability limit was reached (Martin 878). In only 4% of all test fires did the heat detectors provide at least two minutes advance warning before the onset of a hazardous condition (Martin 878). In all tests, the fastest acting heat detector never responded before a smoke detector (Martin 879).

4. The Minneapolis And Bloomington Tests

148. The California results are consistent with the results of other fire detection device studies, including "Minneapolis," [51] "Bloomington," "New South Wales," and "Indiana Dunes" (Clark 698; Bukowski 1009). The Minneapolis test, conducted in 1976 by the Minneapolis Fire Department, is another in a series of full-scale burn tests conducted in residential dwellings. Fire detection devices were evaluated by measuring activation time relative to monitored environmental conditions, such as heat, smoke obscuration and carbon monoxide concentration. One of the more relevant conclusions of this test was that heat buildup in the room of fire origin was highly uneven and greatly affected by the size of the room and the amount of air movement. On the other hand, smoke appeared to diffuse evenly throughout the room. The practical import of these facts is that a heat detector in one part of the room may not be exposed to the activation temperature when temperatures at other locations in the room may reach or exceed hazardous levels. The test report further concluded that smoke buildup in detectable amounts consistently occurred well in advance of detectable temperature increases. Fire experts agree that

the Minneapolis test report is a reliable authority (Clark 690-96, 700; Bukowski 1012).

149. The Bloomington tests, conducted in 1969 by the Bloomington Fire Department, is an earlier burn test conducted under actual fire conditions. Smoke and heat detector performance was evaluated. The results of the tests indicated the general ineffectiveness of heat detectors. In one test scenario, a flaming kitchen fire elevated temperatures to 1,000° within one minute of ignition. The heat detector placed in the kitchen took over three minutes to activate while a smoke detector located in an adjacent hallway activated at three minutes. Fire experts regard this test to be reliable (Clark 689, 696-97, 700; Bukowski 1011-12).

150. Reliable residential fire tests conducted in recent years by fire service professionals show that heat detectors, including Vanguard heat detectors, will not provide occupants with enough time to escape safely before hazardous conditions of smoke, gases and heat develop in most residential fires. These tests include the Indiana Dunes Tests, conducted during the period 1975-1976, and the California Fire Chiefs' tests, conducted in 1978. These fire tests generally confirmed the findings of earlier fire tests, including the Minneapolis Test of 1976 and the Bloomington Tests of 1969. The Indiana Dunes Tests are of particular significance for the reason that they were conceived largely to determine whether a detector should be required in every room for adequate fire protection as some fire marshalls felt in the amended NFPA 74 (Bukowski 964-66).

151. Based on the Indiana Tests, Cal Chiefs' Test and other fire tests discussed hereinabove, which were designed and conducted for the purpose of testing the actual performance and effectiveness of household fire warning devices, including heat detectors and smoke detectors, Messrs. Bukowski, Clark and Martin, concluded that hazardous or life endangering conditions (Martin 816-17) will develop before a heat detector activates in [52] most residential fires and that, therefore, heat detectors cannot be relied on to provide necessary warning to allow a safe escape in most residential fires (Clark 698; Martin 880; Bukowski 1005, 1009, 1013).

152. Mr. Bukowski also testified that heat detectors are not necessary in a household fire warning system (Bukowski 1058).

153. Messrs. Bukowski, Martin, and Clark also testified that there was a general agreement among fire professionals that heat detectors do not give occupants sufficient early warning to allow a safe escape in residential fires for the reason that in most cases untenable environmental conditions would have developed which will seriously impede or block a safe escape (Clark 698-99, 703-04; *see* Martin 880; Bukowski 1013).

154. At the same time, Messrs. Clark and Martin conceded that heat detectors have a role in residential fire safety (Clark 705, 707; Martin 893). Mr. Bukowski also acknowledged that heat detectors are appropriate for use as fire warning devices in some areas of the home, such as attics, furnace rooms, garages, and kitchens, and that they are sometimes capable by themselves of providing

necessary warning to allow residential occupants to escape safely (Bukowski 1185, 1200-01, 1212-13).

155. Messrs. Clark, Martin and Bukowski also acknowledged that a combination system of smoke and heat detectors offers a higher level of fire protection and a margin of safety (Clark 713; Martin 926; Bukowski 1203-04).

156. In its proposed findings, respondent faulted the qualifications of complaint counsel's expert witnesses, characterized them as advocates of smoke detectors, and criticized the methodologies employed in the Indiana and Cal Chiefs' Tests discussed hereinabove and suggested that their opinions are not entitled to much weight (*see* RPF 64-108).

157. As to the test methodology, the record shows a lack of unanimity among expert witnesses regarding the precise tenability limits for heat, smoke obscuration and the carbon monoxide level. Indeed, as more knowledge and understanding is gained through further research, these limits may be further refined and a stronger consensus developed among fire scientists and fire professionals in the future. This is the nature of all scientific progress. However, record leaves no doubt that there is substantial agreement now among fire scientists, on the basis of current learning, as to what these limits should be, and they appear to have a rational, scientific basis (*see* F. 127-32, 142, *supra*).

158. Moreover, the brunt of respondent's criticism is directed to the 150° F. heat limit used in the Indiana and Cal Chiefs' test (*see* RPF 87-93). Mr. Martin used 200° F.

heat limit in a sprinkler activation test he was involved in (Martin [53] 910, 937). It may well be that healthy adults can survive a 200° F. heat exposure for a period substantially longer than three minutes, depending on such factors as the clothing and humidity (Bukowski 1112). However, for the purpose of residential fire safety, protection of the very young, the very old and the infirm is an important consideration. Therefore, 150° F. heat tenability limit appears to be reasonable.

159. More importantly, however, the record is clear that the majority of fires resulting in deaths are smoldering fires which generate large amounts of smoke and gases without significant heat buildup and that the combination of smoke and gases is the leading killer, most bodies showing no sign of heat damage (Clark 674; Martin 830). The record is also clear that in the Indiana and Cal Chiefs' tests, the smoke tenability was usually the first to be reached (Bukowski 986). Thus, the most crucial tenability limit in temrs of life safety is smoke obscuration limit. And the record shows that both the 15% used in the Indiana test and 11% used in the California test have a firm scientific basis (Clark 682; Martin 824; Bukowski 985, 1000-03). In these circumstances, detectors which fail to activate when the smoke limit is reached but do so later when the ambient heat exceeds 150° F. cannot be relied on to give "early" or adequate fire warning in most residential fires.

160. Respondent also criticizes the 3-minute warning requirement set by Messrs. Bukowski, Clark and Martin (*see* RPF 84-85). However, the record shows that there is substantial agreement regarding the three minutes among fire scientists. The fact that some persons may be

able to escape successfully in a shorter time after a tenability limit is reached in some residential fires does not invalidate the 3-minute standard.

161. At the same time, respondent would give great weight to the largely conclusionary statements of Messrs. Ward and Lee, mostly based on their professional experience, that heat detectors are reliable and effective residential fire warning devices. Neither of them seemed to be familiar with the details of the Indiana and Cal Chiefs' tests.

162. Respondent also places heavy reliance on Vanguard heat detector purchaser testimonials and the testimony of several purchaser witnesses it called. REspondent asserts that these testimonials and consumer testimony give the true facts as the Vanguard heat detector's effectiveness (*see* RPF 9022; CX 72). However they are at best anecdotal and do not rise to the same level as the fire tests designed and conducted by fire scientists.

163. Respondent also points to a few sprinkler tests and argue that they showed heat detector activation before "critical" or "real" or "actual" tenability limits were reached or exceeded (*see* RPF 95-98). According to Mr. Gardner, Interstate's chief engineer, in a series of four tests conducted in October 1983 by [**54**] the San Francisco Fire Department using heat detectors, smoke detectors and sprinklers, heat detectors activated before the sprinkler system in all four tests (Gardner 1342).

164. However, the record does not permit an informed evaluation of these "tests" for the purpose of determining whether Vanguard heat detectors can be relied on to provide adequate warning in most residential

fires, for the simple reason that the record does not include these test reports and there is not much to evaluate except the brief conclusionary statements regarding the test results.

165. On the other hand, Mr. Ward, called by respondent, expressed his opinion, based on many years of experience as a fire safety professional, that heat detectors are effective residential fire warning devices (Ward 1696-1747). However, he did not offer any cogent criticism regarding the recent fire tests relied on by complaint counsel.

166. Messrs. Ward and Lee expressed the belief that common sense combined with actual experience suggest that a combination system incorporating both heat and smoke detectors is better than either heat or smoke detectors alone (Lee 1531, 1534; Ward 1709).

167. Mr. Lee also pointed out heat detector's reliability factor due to its mechanical operation, which becomes important in the event a smoke detector should fail because of a dead battery or a power failure, which is a significant problem (Lee 1525-28; RX's 1, 2, 4, 5).

168. Upon a closer examination of the evidence contained in the record as a whole and a careful consideration of the qualifications of the experts, it is found (1) that the reliable scientific evidence shows that heat detectors typically cannot be relied on to give household occupants the necessary warning to allow a safe escape in most residential fires because hazardous conditions seriously impeding or barring a safe escape will have developed before heat detector activation in most fires; (2) that heat detectors have a limited role to play in certain areas

of residences where smoke detectors are not suitable, such as kitchens and garages; and (3) that common sense and experience show that incorporation of heat detectors into a combined smoke-and-heat detector fire warning system can reasonably be expected to provide a significantly increased level of fire warning protection in most residential fires.

5. The 1982 Introduction Of Vanguard 117° F. Fused Heat Detectors

169. Figgie-Interstate has introduced 117° F. fuse heat detectors for sale for the first time in April 1982 (CX 93, Sterner Tr. 1614) and made it standard for Vanguard heat [55] detectors in August 1983 (Sterner 1615). The results of the UL test of the 117° detector show that it did not activate until the ambiaent temperature reached 157° F., indicating that thermal lag remains a serious problem (Bukowski 1042). A recent UL test involving 117° heat detectors (RX 19) activated only two to ten seconds faster than the earlier 136° detector (Bukowski 1044).

170. An analysis of the Indiana Dunes I data indicates that a 117° detector would have provided three minutes warning in only two more test fires, compared to the 136° detector. (The 136° detector provided three minutes warning in only five of the 37 test fires.) Moreover, this analysis is based on an assumption, favorable to the respondent, and that the 117° detector would not be subject to thermal lag (Bukowski 1040), that is, that the 117° detector would activate when the surrounding air reached 117° F.

171. From the foregoing, it is found that the new Vanguard 117° F fuse heat detectors do not show sufficient improvement in performance to materially affect or alter the condlusions based upon the residential fire tests discussed hereinabove.

VI. REFLECTING THE NEW LEARNING FIRE PROTECTION PROFESSIONALS REVISED NFPA-74 IN 1978 SO AS TO MAKE INSTALLATION OF SMOKE DETECTORS IN CERTAIN AREAS OF THE HOUSE MANDATORY WHILE ACCEPTING HEAT DETECTORS AS AN OPTION ONLY IN A SUPPLEMENTARY SYSTEM

172. After the results of the Indiana Dunes tests were published and communicated by Richard Bukowski to the NFPA committee charged with responsibility for Standard 74 (Standards For Household Fire Warning Equipment), the Committee amended the Standard in 1978 to *require* smoke detectors on each level of the home and outside each sleeping area. All mention of heat detectors was dropped from the text of Standard 74 which refers to the required level of fire warning protection. The pertinent portions of the 1980 edition of NFPA Standard 74 are the same (Bukowski 1015-16; CX 23K).

173. The 1980 edition of NFPA Standard 74 recommends that the homeowner consider additional smoke detectors for inside the bedrooms and for those areas separated by a door from the areas protected by the required smoke detectors (CX 23N).

174. The 1980 edition of NFPA Standard 74, however, refers to heat detectors in a footnote in a chapter entitled "Basic Requirements," as follows (CX 23F):

2-1.1.1 Smoke detectors shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms and on each additional story of the family [56] living unit including basements and excluding crawl spaces and unfinished attics.*

* * *

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*The provisions of 2-1.1.1 represent the minimum number of detectors required by this standard. It is recommended that the householder consider the use of additional smoke or heat detectors for increased protection for those areas separated by a door from the areas protected by the required smoke detectors under 2-1.1.1 above. The recommended additional areas are: living room, dining room, bedroom(s), kitchen, attic (finished or unfinished), furnace room, utility room, basement, integral or attached garage, and hallways not covered under 2-1.1.1 above. However, the use of additional detectors remains the option of the householder.

The same footnote is repeated in reference to a later chapter entitled "Markings and Instructions," containing markings required in all sales, advertising, instruction or operating manuals where instructions for use are given (CX 23K).

175. Fire protection professionals also recognize that the installation of smoke detectors *required* by NFPA Standard 74 does not provide adequate protection for the occupants from a fire starting within their bedrooms or for those areas separated by a door from the protected

areas and, for these reasons, recommend the use of additional smoke detectors for those areas for increased protection. Such additional areas include: basement, bedrooms, dining room, furnace room, utility room, and hallways not protected by the *required* smoke detectors. *See* NFPA Standard 74, App. B-2.2 (CX 23N).

176. At the same time, fire protection professionals recognize that certain areas in a house, such as kitchens, attics and garages, are not suitable for a smoke detector because these locations occasionally experience conditions which may result in improper smoke detector operation. *See* NFPA Standard 74, B-2.2 (CX 23N). For these reasons, NFPA Standard 74 recommends that the householder consider using, *in addition to smoke detectors required by Standard 74,* additional heat detectors in such areas as kitchen, dining room, attic, furnace room, utility room, basement and garage. For bedrooms, Standard 74 prefers a smoke [57] detector for protection of the occupants from fires in their bedrooms. *See NFPA Standard 74,* App. B-3.1 (CX 23 N-O).

177. Neither of respondent's two expert witnesses expressed any disagreement with the 1978 revision of NFPA 74 discussed hereinabove.

178. The consensus among responsible fire protection professionals, as reflected in the revised NFPA 74 discussed hereinabove, is further evidenced by the 35 states in this country which have residential fire detector laws requiring the use of smoke detectors in lieu of heat detectors (Clark 701-02).

VII. THE CLAIM THAT VANGUARD HEAT DETECTORS PROVIDE THE NECESSARY WARNING FOR SAFE ESCAPE IN RESIDENTIAL FIRES IS MISLEADING AND DECEPTIVE UNLESS IT IS COUPLED WITH A DISCLOSURE OF THE MATERIAL FACT THAT HAZARDOUS CONDITIONS MAKING SAFE EXCAPE DIFFICULT OR IMPOSSIBLE WILL DEVELOP BEFORE HEAT DETECTOR ACTIVATION

179. The fact that Vanguard heat detectors will not give necessary warning to allow a safe escape in most residential fires because hazardous conditions of smoke and gases will have developed by the time they activate is a material fact.

180. Therefore, the claim that Vanguard heat detectors are reliable fire warning devices in residential fires are misleading and deceptive unless such a claim also discloses the material information that hazardous conditions of smoke and gases will have developed before detector activation which will hinder a safe escape in most residential fires.

181. It is well-settled that failure to disclose material information may cause an advertisement to be deceptive even if it does not state false claims. *Simeon Management Corp. v. FTC*, 579 F.2d 1137, 1145 (9th Cir. 1978); *Bristol-Myers Co. v. FTC*, 738 F.2d 554, 563 (2d Cir. 1984); *Sterling Drug, Inc. v. FTC*, No. 83-7700, slip op. at 19-20 (9th Cir., Aug. 28, 1984).

VIII. FIGGIE-INTERSTATE'S HEAT DETECTOR DEMONSTRATIONS ARE MISLEADING AND DECEPTIVE

182. The ineffectiveness of heat detectors in most residential fires is explained in large part by the problem of thermal lag and by the physical characteristics of heat movement in a given environment. Heat, unlike smoke, tends to diffuse unevenly through a room (Clark 692-93; Bukowski 1038-39). In the early stages of a fire, the ceiling will absorb about 90% of the thermal energy generated by a fire (Bukowski 1037). Therefore, unless the heat detector is located directly over the point of [58] origin of the fire, activation will be delayed until air temperature in the entire room has reached the necessary level (Bukowski 1039).

183. For this reason, the cardboard house demonstration (F. 62, *supra*) is misleading. Reasonable consumers will infer from the demonstration that the response time of the Vanguard heat detector during this demonstration is indicative of response time under actual fire conditions. In this demonstration the candle, located about six inches away from the heat detector fuse, generates a hot air flow which is channeled by the cardboard house directly across the fuse element. Under actual fire conditions, it would be completely fortuitous for a heat detector to be located in the direct flow of hot air. Moreover, given the close proximity of the candle and fuse, the heat detector is absorbing significant radiant heat. For similar conditions to occur under actual fire conditions, the heat detector would have to be located directly above the point of fire origin. The most dramatic aspect of the demonstration – activation of the heat detector prior to

the tissue burning – is also misleading. Given the fact that the ignition temperature of paper is 450°, the activation of a 136° heat detector before tissue ignites is to be expected. The demonstration merely shows that the detector fuse melts by 450° and no more (Bukowski 1056-57).

184. The *Disneyland Hotel* demonstration, referred to in CX 61 and cited as evidence of heat detector reliability, also does not fairly reflect heat detector performance under actual fire conditions. In this demonstration, a hair dryer was used to blow hot air directly across the surface of a 136° fuse. A measuring device was placed in the air stream to monitor the temperature at activation. Because the efficiency of heat transfer by means of convection is directly proportional to air velocity, the stronger the flow of hot air, the faster the device will activate – even if the temperature of the air flow remains constant. Under actual fire conditions, it is unlikely that the velocity of hot air would approximate the high-speed air flow from a hair dryer. Consequently, CX 61 misleads reasonable consumers to form an impression that heat detectors are reliable in the context of providing the necessary warning for a safe escape in residential fires (Bukowski 1044-46).

185. It is well settled that a determination of false advertising can be based on deceptive visual representations. *Standard Oil Co. of California v. FTC*, 577 F.2d 653, 659 (9th Cir. 1978); *American Home Products Corp. v. FTC*, 695 F.2d 681, 688 (3rd Cir. 1982). And it is within the Commission's expertise to determine what inferences consumers may draw from visual representations. *Sterling Drug, Inc. v. FTC, supra* at 14. **[59]**

IX. THERE IS NEAR UNANIMITY AMONG FIRE PROFESSIONALS THAT AFTER SMOKE DETECTORS ARE INSTALLED OUTSIDE SLEEPING AREAS AND ON OTHER LEVELS OF THE HOUSE, INSTALLATION OF ADDITIONAL HEAT DETECTORS OR SMOKE DETECTORS IN A COMBINATION SYSTEM CAN INCREASE THE LEVEL OF FIRE PROTECTION IN THE HOME

186. The evidence discussed hereinabove clearly and convincingly shows that there is a near unanimity among fire protection professionals as well as fire scientists that installation of a combined system incorporating both smoke detectors and heat detectors, *in addition to* the installation of smoke detectors outside each sleeping area and on each level of the house, can provide increased protection in residential fires.

187. However, a representation that a combined system offers increased or improved level of fire protection is misleading unless it also discloses the material information that any combination system must include smoke detectors outside each sleeping area and each additional story of the house as a minimum.

X. RELIEF

188. The record clearly shows that the principal claim contained in Figgie-Interstate's promotional material discussed herein is that heat detectors will provide the necessary warning to enable occupants to escape safely in most residential fires. Figgie-Interstate promotional materials discussed herein also recommend that a

homeowner purchase heat detectors for every major living area of the home in addition to attics, basements, closets, storage areas and garages. And the sales figures showing the disproportionate ratio of smoke and heat detectors sold provide a sound basis for concluding that consumers have in fact acted upon Figgie-Interstate's representations.

189. In the absence of an appropriate order, consumers will continue to suffer substantial economic injury from the purchase of Vanguard heat detectors in the belief that they provide the necessary warning to allow a safe escape in most residential fires. Moreover, to the extent that heat detectors are purchased in lieu of smoke detectors in reliance of respondent's misleading claims, a threat to life safety may be posed.

190. The evidence shows that, although Figgie-Interstate knew or should have known the limitations of heat detector performance, Figgie-Interstate has disseminated and continues to disseminate promotional materials containing false performance claims for Vanguard heat detectors while disparaging smoke detectors. [60]

191. In order to prevent further consumer injury and threat to life safety in residential fires, it is necessary and appropriate in this case to require Figgie-Interstate to cease and desist from making false and deceptive claims in the future that directly or impliedly represent that Vanguard heat detectors will provide the necessary warning to occupants to allow them to escape safely without disclosing the material fact that hazardous conditions of smoke and gases will have developed before heat detector activation in most residential fires.

192. It is reasonable to conclude from the record evidence that consumers purchased Vanguard heat detectors in reliance upon respondent's express and implied claim that heat detectors will provide necessary warning to allow a safe escape in most residential fires and that they will not be able to determine or find out for themselves, until it is too late for them, that hazardous conditions of smoke and gases will develop before a heat detector activates in most residential fires. In order to correct this grave situation involving the life safety of a substantial number of Vanguard heat detector purchasers and their families, it is important that the past purchasers of Vanguard heat detectors be notified of this critical material information, which should have been disclosed to them before they purchased Vanguard heat detectors.

193. Respondent should also be prohibited from misrepresenting the existence of any standards related to residential fire safety devices or systems or the contents thereof, as evidenced by F. 80-82, *supra*. **[61]**

DISCUSSION

1. Respondent's Liability For Misleading And Deceptive Representations

It is true that the Interstate distributors (and their sales representatives), who conducted in-home sales presentations and made the misleading and deceptive representations directly to consumers about Vanguard heat detectors, were not employees or agents of Figgie International, Inc. or its Interstate Engineering Division. Rather, these distributors promoted and sold Vanguard

heat detectors under a distributorship contract with Interstate. However, the record is also clear that (1) Figgie-Interstate developed, produced and sold or distributed the promotional materials containing the challenged claims to its contract distributors for the very purpose of promoting and selling Vanguard fire alarm products, including heat detectors, to consumers, (2) it advised and encouraged the use by its contract distributors of the promotional materials in in-home sales presentations, (3) it trained its contract distributors in the use of the promotional materials in in-home sales presentations of Vanguard heat detectors and (4) it knew of and approved the use of its promotional materials by its contract distributors in in-home sales presentations. In these circumstances, the Section 5 liability of Figgie-Interstate for the deceptive representations made by its distributors to consumers in in-home sales presentations of Vanguard heat detectors is beyond dispute. *See, e.g., National Housewares, Inc., et al.*, 90 F.T.C. 512 (1977).

2. There Is Sufficient Agreement Among Fire Professionals Regarding The Serious Limitations Of Heat Detectors And Respondent Should Be Required To Disclose This Material Information When Promoting Heat Detectors

The evidence shows that a large number of heat detectors have been sold through in-home sales presentations to American householders since the early 1960's and that respondent has been a leader among the sellers of heat detectors in this country. In the course of promoting its fire protection products, respondent and its dealers have been instrumental in making a significant segment

of American households aware of the real need for an effective fire protection measure for every home. As a result of respondent's endeavors of many years, a large number of American homes have purchased and relied on, and continue to purchase and rely on, respondent's heat detectors for fire protection. For many years, heat detectors were regarded by fire professionals as [62] an acceptable residential fire warning device either by themselves or in combination with smoke detectors.

However, the situation changed in a fundamental way during the mid-1970's. As the scientific knowledge regarding the behavior of fires increased, a question arose among fire scientists and fire protection professionals as to the relative capability of heat detectors and smoke detectors and the appropriate places for them in a residential fire protection system. These concerns culminated in the 1974 proposal to amend the National Fire Protection Association Standard For The Installation, Maintenance and Use of Household Fire Warning Equipment (often referred to simply as NFPA-74). The proposed amendment sought to eliminate the prior requirement for heat detectors from NFPA-74 and accepted a minimum level of protection consisting of smoke detectors alone in the vicinity of bedrooms and on every other level of the home. And, in order to settle the question as to whether it was necessary to install a heat detector in every room in a home, fire scientists and fire protection professionals, with the cooperation and contribution of fire alarm product manufacturers, designed and conducted a series of residential fire tests known as the Indiana Dunes test during the years 1975 and 1976. The results of these tests convincingly demonstrated important limitations of heat

detectors vis-a-vis smoke detectors, the most important of which being the finding that hazardous levels of smoke, heat and carbon monoxide gas developed before heat detector alarm went off in most tests. After the test results were communicated to NFPA, NFPA-74 was revised in late 1978 so as to incorporate the 1974 amendments. The revised NFPA-74 became the 1980 edition of NFPA-74. In short, in 1978, the NFPA, reflecting the new knowledge and consensus among fire scientists and fire protection professionals, downgraded heat detectors from its former position of a required device to that of an optional and supplemental device acceptable only after the required smoke detectors are in place in a home.

As amply documented in the record, respondent, in the face of the new reality as embodied in the 1978 revision of NFPA-74, sought to continue, and have continued, promoting its heat detectors as an effective household fire alarm devices [sic] without disclosing to the consumer the crucial and material information that hazardous levels of smoke, heat or carbon monoxide gas may develop and seriously impede a safe escape before a heat detector alarm goes off in most residential fires. This state of affairs should not be allowed to continue.

It is true, as respondent vigorously contends, that the fire science is an evolving discipline and that the fire test methodology may be further refined as scientific knowledge regarding the behavior of fire and related chemical and physiological factors expands in the future. it is also true that the new consensus regarding the limitations of heat detectors as a residential fire alarm device is not entirely free [63] of thoughtful dissent. However, we know enough to convince us now that heat detectors

have serious limitations as household fire protection devices and that respondent should not be permitted to continue as before.

In view of the above discussion, what the Order seeks is not to impose a flat ban on the promotion of heat detectors as household fire protection devices, but merely to require that the important and material information regarding the limitations of heat detectors be communicated to the consumer when promoting heat detectors and similarly that any combination system must include the minimum number of smoke detectors as required by the NFPA-74 (1980).

3. There is Near Unanimity Among Fire Professionals That Once The Required Smoke Detectors Are Installed, Installation Of Additional Heat Detectors Or Smoke Detectors Can Increase The Level Of Fire Protection In Homes

At the same time, reflecting the universal agreement among fire professionals that installation of additional smoke or heat detectors *after* the required number of smoke detectors are installed can significantly increase the level of fire protection in homes, the revised NFPA-74 accepts additional smoke detectors as an option in a supplementary system. Therefore, respondent should be permitted to promote heat detectors in the future as a component of a combination system provided respondent also discloses to the consumer that any combination must include a smoke detector outside sleeping areas and other levels of the house.

4. Order Provisions

A. *Affirmative Disclosure Requirements*

The Commission's authority to require affirmative disclosure with respect to product performance even when the required disclosure runs counter to the interest of the product advertiser or promoter is well established. *Simeon Management Co.*, 87 F.T.C. 1184 (1976), *aff'd, Simeon Management Co. v. FTC*, 579 F.2d 1137 (9th Cir. 1978). And it is not necessary that a failure to disclose a material fact must be specifically alleged in the complaint as long as the need for an affirmative disclosure requirement is supported by the evidence. *J.B. Williams, Co. v. FTC*, 381 F.2d 884, 888 (6th Cir. 1967). **[64]**

In determining the reasonableness of a required affirmative disclosure, the factors to be considered include the existence of health or safety issues (*see American Home Products Corp. v. FTC*, 695 F.2d 681, 714 (3d Cir. 1982)) and the gravity and deliberateness of the violations (*see FTC v. Colgate-Palmolive Co.*, 380 U.S. 374, 395 (1965); *Standard Oil of California v. FTC*, 577 F.2d 653, 662 (9th Cir. 1978)).

B. *Part I of the Order*

A cease and desist order coupled with appropriate affirmative disclosure requirements is imperative in this case in order to effectively prevent continuation of the deceptive performance claims which involve the potential fire safety of a large number of families. Without a clear disclosure of the serious limitations of heat detectors in residential fires, as have been so convincingly shown in

recent fire tests and generally recognized by fire professionals, any unqualified effectiveness claim for heat detectors will continue to mislead consumers into believing that heat detectors can be relied on to give adequate warning for a safe escape for them and their families in case of a fire.

In the disclosure related to a simple effectiveness claim (I A(1)), the language is carefully circumscribed in order to convey the material information which must be conveyed to consumers without unduly frustrating the legitimate promotion of heat detectors by respondent and its contract distributors. It does not require, as complaint counsel propose, that the disclosure statement say "heat detectors will not help you get out of the house in time" or "heat detectors will not protect you from most fires." Instead, it requires a simple and straightforward statement that "dangerous levels of smoke, heat or carbon monoxide gas may develop before a heat detector alarm goes off."

In the disclosure related to a combination system (I A(2)), the language is designed to convey the crucial and material information to the householder that any residential smoke/heat detector combination fire warning system must include a smoke detector outside each sleeping area and on each additional level of a house as required by NFPA-74, without unduly frustrating the legitimate promotion of a supplementary, smoke/heat detector combination system. This provision would leave respondent free to say, for example, that "after you install a smoke detector outside each sleeping area and on each additional story, it is a good idea to install additional heat

detectors or smoke detectors in other areas of the house for increased protection" or a variation thereof.

Part I B is necessary to prevent misrepresentations of performance characteristics of heat detectors or smoke detectors [65] in any form and to prevent misrepresentations regarding the existence of any standard governing residential fire alarm system, or content of such standard, or compliance of any heat detector with such standards.

Part I C is a broad proscription against heat detector performance claims of any kind not substantiated by competent and reliable scientific evidence.

C. *Part II of the Order*

Part II specifically mandates inclusion of a clear and straightforward affirmative disclosure message in all future promotional material used for heat detectors sold by respondent. This provision is designed to ensure that the disclosure required in I A(1) is included in every heat detector promotional material disseminated by respondent and shown or made available to householders in in-home sales presentations.

Complaint counsel's proposal to require all Interstate dealers and their sales representatives to secure a signed form from every heat detector purchaser that a required disclosure notice has been furnished and received is rejected. It is my view that such a requirement is unnecessary and unduly onerous.

D. *Part III of the Order*

Part III requires respondent to communicate the required affirmative disclosure to householders who are known to have purchased Vanguard heat detectors since January 1, 1979. It is designed to ensure that the critical limitations of heat detectors are communicated to past purchasers who relied on respondent's misleading performance claims when they purchased heat detectors and continue to rely on such claims as true, thereby leaving themselves and their families with a false sense of safety in the event of a fire. This situation is attributable to respondent's deliberate and continued dissemination of misleading claims for Vanguard heat detectors after the 1978 amendment of NFPA 74, discussed hereinabove (F. 172). And, the record shows that respondent in fact possesses the names and addresses of purchasers of Vanguard heat detectors (F. 19, *supra*). The notification requirement is necessary to effectively remedy the violation found in this case which in a real sense is continuing to this day as regards the past purchasers. *Cf. FTC v. Virginia Homes Mfg. Corp.*, 509 F.Supp. 51, 57 (D.Md. 1981). In these circumstances, equity and concern for life safety in residential fires dictate no less. **[66]**

E. *Part IV Of The Order*

Part IV is designed to promote compliance with this order by all echelons of Figgie-Interstate organization, including its dealers who sell fire alarm products.

Conclusions of Law

1. The Federal Trade Commission has jurisdiction over the marketing and promotion of Vanguard heat detectors under Section 5 of the Federal Trade Commission Act.

2. Respondent's use of false, misleading and deceptive statements and representations as herein found is likely to mislead reasonable consumers into believing that such statements and representations were and are true and induce them into the purchase of substantial quantities of Vanguard heat detectors by reason of those mistaken beliefs.

3. In the absence of an appropriate order, the purchasing public is likely to continue to purchase substantial quantities of Vanguard heat detectors because the public believes respondent's statements and representations regarding the capacity of the Vanguard heat detector to provide the necessary warning for safe escape in most residential fires.

4. The acts and practices of respondent is herein found were and are all to the prejudice and injury of the public and constitute unfair and deceptive acts and practices in commerce in violation of Section 5 of the Federal Trade Commission Act.

5. The following order is proper and necessary under applicable legal precedent and the evidence in this case. **[67]**

ORDER

I.

It is ordered, That respondent, Figgie International, Inc., its successors and assigns, and respondent's officers, agents, representatives and employees, directly or through any corporate or other device, in connection with the advertising, offering for sale or distribution of any heat detector or any residential fire alarm system containing a heat detector, as the term *heat detector* is defined by the National Fire Protection Association's Standard, 74, in or affecting commerce, as "commerce" is defined in the Federal Trade Commission Act, do forthwith cease and desist from:

A. Representing in any manner, directly or by implication:

(1) That in the event of a fire, a heat detector (or detectors) will provide the necessary warning to occupants to allow them to escape safely, without also stating that dangerous levels of smoke, heat and carbon monoxide gas will build up before a heat detector alarm goes off in most fires; or

(2) That a heat and smoke detector combination system will provide better [68] or significantly increased fire protection, without also stating that any combination system must have a smoke detector outside each sleeping area and on each additional story of the house, as required by the National Fire Protection Association Standard 74 or by the State.

B. Misrepresenting in any manner, directly or by implication:

(1) The performance characteristics of any heat detector or any residential fire alarm system containing a heat detector including, but not limited to, the capability of the heat detector to provide the necessary warning to occupants to allow them to escape safely in the event of fire; or

(2) The existence or content of any standard or recommendation established or made by the National Fire Protection Association or any other entity regarding the location, number or type of fire protection devices to be installed in a residence, or [69] compliance of any heat detector or residential fire alarm system containing a heat detector with any such standard or recommendation; or

(3) The performance characteristics of any smoke detectors or any residential fire alarm system containing a smoke detector.

C. Representing in any manner, directly or by implication, the performance characteristics of any heat detector or any fire alarm system containing a heat detector including, but not limited to, the capability of the heat detector to provide fire warning protection, unless at the time of making any such representation respondent possesses and relies upon competent and reliable scientific evidence which substantiates such representation.

II.

It is further ordered, That respondent shall, within 120 days from the date of service of this order, include the following notice in all print advertising or print promotional material for [70] all heat detectors manufactured or